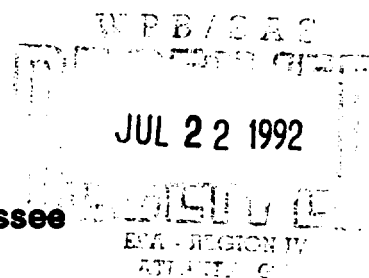


SI 36077
Higher Priority
6/5/92

**FINAL
PRELIMINARY ASSESSMENT**

**Residue Hill
Chattanooga, Hamilton County, Tennessee
EPA ID # TND987782505
WasteLAN # 05782**



**EPA Work Assignment Contract # 9
EPA Contract # 68-W9-0065**

**Prepared for
U.S. Environmental Protection Agency**

**Prepared by
B&V Waste Science and Technology Corp
BVWST Project # 52009.013**

July 22, 1992

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**Hubert Wieland
Project Manager**

**FINAL
PRELIMINARY ASSESSMENT
Residue Hill
Chattanooga, Hamilton County, Tennessee**

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PRELIMINARY ASSESSMENT
Residue Hill
Chattanooga, Hamilton County, Tennessee
EPA ID # TND987782506
WasteLAN # 06782

1.0 Introduction

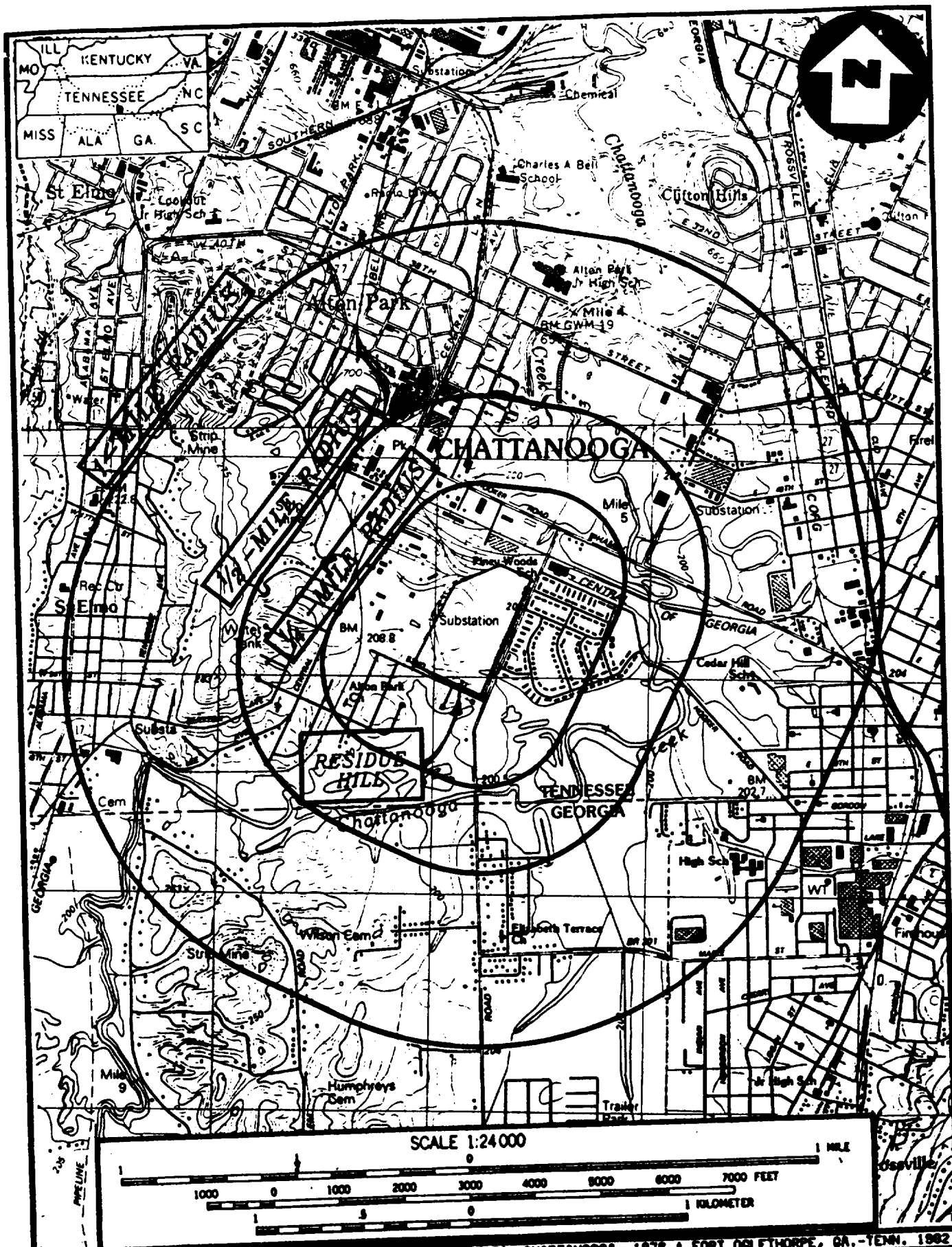
Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the U. S. Environmental Protection Agency (EPA), Waste Management Division, Region IV conducted a Preliminary Assessment (PA) at the Residue Hill site in Chattanooga, Hamilton County, Tennessee. The purpose of this investigation was to collect information concerning conditions at the Residue Hill sufficient to assess the threat posed to human health and the environment and to determine the need for additional investigation under CERCLA/SARA or other action. The scope of the investigation included review of available file information, a comprehensive target survey, and an offsite reconnaissance.

2.0 Site Description, Operational History and Waste Characteristics

2.1 Location

Residue Hill is located at Wilson Road and 52nd Street in an urban area of Chattanooga, Hamilton County, Tennessee (Figure 1). Specifically the site is located at 34° 59' 31" N. latitude and 85° 18' 44" W. longitude (Ref. 1). Land use in the area is primarily industrial and residential (Ref. 2, 3).

The average annual precipitation in Hamilton County is approximately 52 inches and the mean annual lake pan evaporation is approximately 36 inches. This results in a net annual precipitation of 16 inches (Ref. 4, pp. 43, 63). The 2-year, 24-hour rainfall is 3.7 inches (Ref. 5, p. 93). Topography in the area ranges from 200 to 700 feet above mean sea level (amsl) whereas Residue Hill lies at 220 amsl (Ref. 2).



BASE MAP IS A PORTION OF THE USGS 7.5 MINUTE QUADRANGLES, CHATTANOOGA, 1978 & FORT COLETHORPE, GA.-TENN. 1992



SITE LOCATION MAP
RESIDUE HILL
CHATTANOOGA, TENNESSEE

FIGURE
1

2.2 Site Description

The total area of the site is approximately 50 acres (Ref. 6). The site is located on a hill that rises approximately 50 feet above the surrounding areas. Surface water runoff is routed through well developed drainage ditches running along the south and east side of the hill; the runoff is collected from these ditches and discharged to the city sewer. At the time of the reconnaissance, the ditches did not show signs of distressed vegetation and had no standing water in them. During large storm events, the ditches have overflowed, causing both runoff points to discharge ultimately to Chattanooga Creek (Refs. 7). To the northeast of the hill is a wooded area, which contains a large swampy portion of ground which may be the result of a seep. Seeps are caused by a groundwater discharge to the surface. The potential exists for local seeps to contain water from the perched groundwater under Residue Hill (Ref. 8). At the time of the reconnaissance, an oily sheen existed on parts of the swamp and in a nearby drainage ditch. It is not known if the sheen is caused by leachate from the hill. Wilson Road is to the east and southeast. Directly across Wilson Road is a Chattanooga Housing Authority Project and Piney Woods School. To the south, the site borders private residences which face 52nd Street. Piney Woods playground is approximately 200 feet south of the residences on 52nd Street. Piney Woods Spring is located at the playground, where it is collected and discharged to the city municipal sewer. It was evident during the reconnaissance that there are numerous other seeps at the playground and large sections of the park are perpetually wet. Seeps were also evident in the backyards of properties adjoining the playground. There appeared to be distressed grass in a corner of the backyard of one resident, near a seep (Refs. 2, 3, Picture Nos. 1, 15, 16). The Velsicol Chemical Plant and the former Chattanooga Coke and Chemical Plant are northwest of Residue Hill (Ref. 3, Picture No. 1) Currently, the site is not listed on the RCRA Notifiers List (Ref. 9). Residue Hill is completely fenced by a large chain link fence with barbed wire on top, however there is ready access to the seep areas surrounding the site (Ref. 3; Picture N^o 1). The site layout is shown as Figure 2.

2.3 Operational History and Waste Characteristics

The Residue Hill site is currently owned by Farley Metals Inc. In 1986 the Velsicol Chemical Plant was purchased by its current owners, four Senior managers of the plant. Residue Hill, however, was retained by Farley Metals, Inc. (Ref. 10).

Residue Hill was used as a disposal site for a ferrosilicon alloy plant which occupied the site from 1918 to 1963 (Ref. 7, 11). The waste contained heavy metals. From 1963 to 1974

(CHATTANOOGA COKE & CHEMICAL)

PROPERTY BOUNDARY

HEAVILY WOODED

SEEP

VELSICOL-CHATTANOOGA
PRODUCTION FACILITY

000000

INACTIVE DISPOSAL SITE

FENCE LINE

DRAINAGE DITCH

DRAINAGE DITCH

PROPERTY BOUNDARY

FENCE LINE

PRIVATE RESIDENCES

PINEY WOODS SPRING

NOT TO SCALE

WILSON ROAD

CHATTANOOGA HOUSING AUTHORITY PROPERTY

PINEY WOODS
SCHOOL



SOUTHEAST
RUNOFF
AREA



SITE LAYOUT MAP
RESIDUE HILL
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE

FIGURE 2

herbicide and pesticide residues were disposed of on the hill by the Velsicol Chemical Plant (Ref. 7, 8). The residues were pre-treated in settling ponds and then discharged to the municipal sewer system. Acid neutralization pits were also present on the hill. Benzoyl chloride residue, benzoic acid still bottoms, benzo-trichloride still bottoms, spent carbon from a hydrochloric acid plant and Banvel (dicamba) contaminated materials were disposed of at the site (Ref. 12). The majority of the surface impoundments were covered sometime in 1973 to control air emissions in an agreement with Chattanooga, Hamilton Air Pollution Control Bureau (CHAPCB). The "cap" consisted of a grass seeded clay covering (Ref. 13). Large numbers of drums were stored on the site at various times in the 1970's. The drums contained "chemical residues" to be burned in an onsite waste burner. About 12,000 drums were stored on-site in mid-1974 and leaking drums were present at that time. They reportedly were removed by a disposal contractor in 1975 (Ref. 7). All disposal practices were discontinued in 1974 (Ref. 7). The disposal area was actively leaching to the swamp east of the southeast overflow point in 1977 (Ref. 7).

Waste water streams from the site were sampled in 1973 and 1977 by USEPA. Four streams were sampled each time, including a process wastewater discharge to the municipal sewer and three surface water runoff points discharging to small tributaries of Chattanooga Creek. The swampy area east of the southeast runoff overflow point was determined to be heavily contaminated with leachate from the disposal pits (Ref. 7).

Residue Hill was capped again by Velsicol in late 1980. This cap used an impermeable membrane liner and clay cap to control infiltration and subsequently leachate from the disposal area with oversight from the USEPA, Tennessee Department of Public Health and the CHAPCB. During the construction, waste residue and 50-100 drums were uncovered to the east of the site in an area previously believed to be free from contamination. A decision was made to extend the cap over the newly discovered drums and residues. There were reportedly several unwarranted deviations from the cap design during construction that caused concern with the oversight agencies. These included air releases of fumes, surface seepage from the residues during construction, the depth of the liner anchor trench, the thickness of the individual clay lifts, and the gradient of the drainage system (Ref. 14). Upon completion of the cap in October of 1980, the air emissions were controlled to the satisfaction of the CHAPCB. During this time, however, the overall effectiveness and integrity of the cap were questioned by CHAPCB (Ref. 14). The file material contains no record of further improvements to Residue Hill. Groundwater and surface water monitoring continues presently, the number of hazardous

compounds being analyzed for has been reduced, documentation explaining the reasons for this however, could not be located (Refs. 15, 16, 16A). Comparing analytical data from September 20, 1982 and October 10, 1990 allow no conclusions about the caps effectiveness. See Table 1 for a listing of selected contaminant levels.

3.0 Groundwater Pathway

3.1 Hydrogeologic Setting

The Residue Hill Site is located in the Tennessee River Valley district of the Broad Valley and Ridge Physiographic Province (Ref. 17, p. 393). This region is characterized by northeast-southeast trending valleys and ridges caused by thrust faulting from the east-southeast (Ref. 18, pp. 39-45). Approximately 75 percent of the 4-mile radius is affected by local faulting. The eastern portion of the 4-mile radius displays a repetition of beds, which possess a low-angle dip gently to the west with no apparent deformation. The geologic peculiarities of the area, originating from a cross-section located approximately 8 miles north of the site, are shown on Figure 3 (Ref. 19, pp. 184-186, Plates 12, 15).

The soil beneath the site is of the Colbert-Talbott Association; more specifically, the soil type is the arents soil. This soil type occurs in areas near suburbs of cities and has been moved or deeply mixed by machine as is typical of urban land complexes. The Colbert-Talbott soil has a moderate to steep slope, moderate to well drained, clayey subsoil and a depth of 5 feet or less over limestone (Ref. 20).

In the site area, residuum is less than 15 feet thick. This residuum is the most extensive unconsolidated rock material in Hamilton County. Typically, when the residuum overlies limestone, it is composed mainly of clay, which creates low permeability and low water yield. However, over the Knox Group the residuum contains larger angular fragments (mostly chert) as well as sand, silt, and small amounts of clay which yield a sufficient supply for potable use (Ref. 18, p. 119). The hydraulic conductivity of this residuum is approximately 1.0×10^{-3} cm/sec (Ref. 21). The depth to groundwater is very shallow (5-15 feet below land surface) due to the perched aquifers on the hill. At the site, the shallow groundwater could flow any direction due to the topography (Ref. 2).

TABLE 1
Analytical Results
RESIDUE HILL

Chattanooga, Hamilton County, Tennessee



PARAMETERS (ug/L)	SEPTEMBER 20, 1982					OCTOBER 10, 1990			
	Well N° 3	Well N° 4	Well N° 5	Seep		Well N° 3	Well N° 4	Well N° 5	Seep
Benzene	ND	ND	16	115		7.5	ND	80.7	15.1
Dichlorobenzene	ND	ND	60.3	203		18	ND	23.5	219
Chlorobenzene	38	28	655	1,245		166	[1.9]	689	366
Toluene	37	ND	20	333		118	[2.2]	6.6	[2.7]
Chlorides	494	709	545	565		ND	129	410	68.7
Hardness	1,400	1,300	1,000	2,100		-	306	639	238
pH	6.0	6.0	8.0	6.0		6.57	6.76	6.68	6.85
Specific Conductance	500	690	860	1,110		1,830	961	1,870	758

[] Below LOQ, Above LOD
 ND None Detected
 - Information not analyzed

STRATIGRAPHY

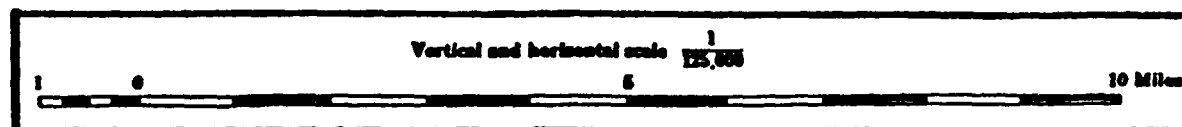
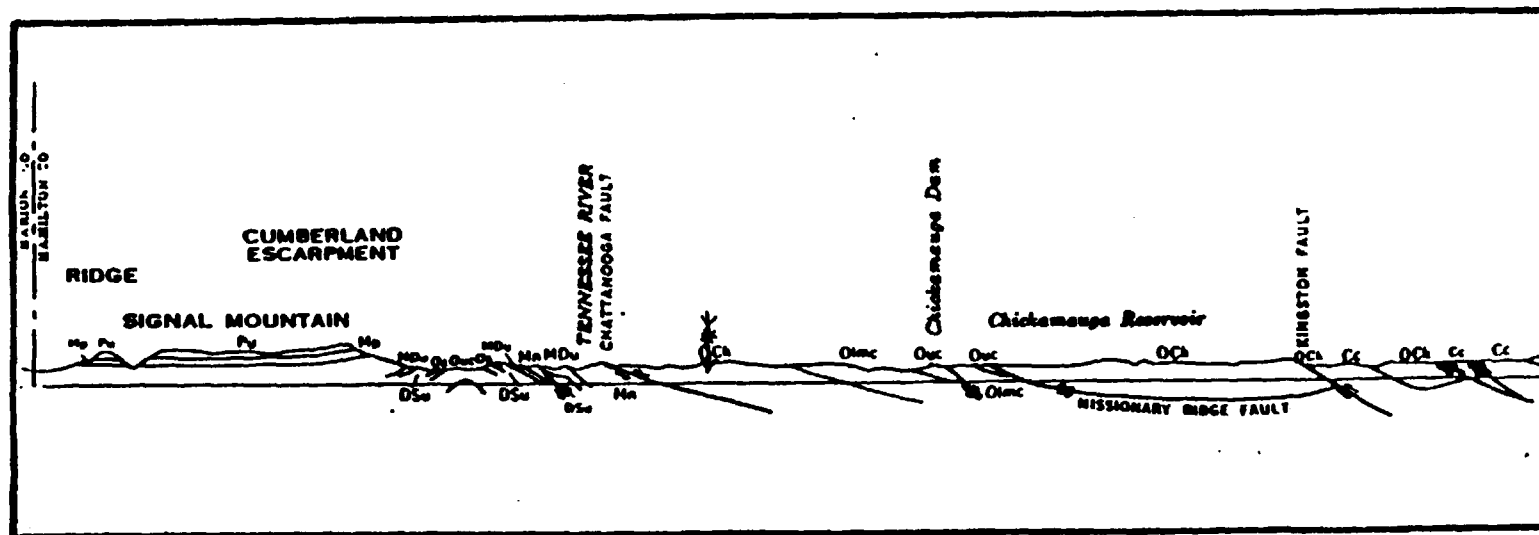
Pu - PENNSYLVANIAN UNDIFFERENTIATED
Mp - FORT PAYNE CHERT
Mn - NEWMAN Limestone
MDu - FORT PAYNE CHERT AND CHATTANOOGA SHALE
DSu - CHATTANOOGA SHALE AND ROCKWOOD FORMATION
Os - SEQUATCHIE FORMATION
Olm }
Ovc } - CHICKAMAUGA LIMESTONE
Ock - KNOX GROUP

LEGEND

 FAULT SHOWING RELATIVE MOVEMENT
 RELATIVE LOCATION OF SITE

N.W.

S.E.



BASE MAP IS FROM JOHN RODGER. U.S. GEOLOGICAL SURVEY, 1966.

Outcropping basement rock at the site consists of multiple thrust segments of the Cambrian and Ordovician aged Knox Group. One major thrust fault crosses under the Chattanooga Creek at stream miles 1.8 and 6.0. The Knox Group is characterized by 2600 feet of siliceous, light to gray, fine to coarse-grained dolomite and minor limestone which weathers to cherty rubble (Ref. 22).

The majority of groundwater in the area occurs under artesian conditions and is obtained from the solution cavities and fractures of the calcareous Knox Group bedrock. Extensive surficial karst features exist approximately four miles northeast of the site, and three miles north of the site. These features substantially increase the threat of aquifer contamination of this interconnected residuum/crystalline rock aquifer system (Ref. 23). The Chattanooga Creek bed and surrounding areas have a thin layer of residuum that overlies the dolomite, and in some areas (away from the creek) is capable of yielding enough water for small domestic supplies. Water can also be obtained from the interface of the residuum and the underlying bedrock.

Wells in the site area are typically 40 to 400 feet deep, utilizing the Knox Group; however, water quality has been reported as extremely poor and visibly contaminated. Well yields range greatly from 25 up to 500 gallons per minute (gpm) in the study area, but average between 10 - 50 gpm (Ref. 19, pp. 188-205).

Three on-site monitoring wells are currently being sampled for analysis. Benzene, dichlorobenzene, chlorobenzene, toluene and chlorides are the only contaminants being analyzed for in the groundwater samples. Two of the three wells are contaminated, the third is relatively clean. See Table 1 for a detailed listing.

3.2 Groundwater Targets

The Walker County water system is partially supplied by three groundwater wells located at the Coke Oven property in Chickamauga, two miles south of the site. These wells are blended with each other, and with the system's surface water intake. The total system serves approximately 7,000 persons. The wells are greater than 300 feet deep and draw water from the Paleozoic Limestone aquifer (Knox Group) (Ref. 24). The nearest well to the site is a Walker County well approximately 2.0 miles south of the hill (Refs. 2, 4, 25, 26, 27, 28). Hamilton County does not obtain public water from groundwater sources. Scattered areas of private well usage may exist, but exact locations are unknown (Ref. 26).

3.3 Groundwater Conclusions

A release of hazardous substances is suspected due to the shallow aquifer, documented deposition of residue wastes, and testing of local springs and runoff points. Due to the karst terrain in the area and high hydraulic conductivity, the potential for widespread migration of contaminants is high. The Walker County wells serve 3,500 people as potential targets.

4.0 Surface Water Pathway

4.1 Hydrologic Setting

Overland drainage from the site flows northeast and east into well defined drainage ditches and is then collected into the city sewer. Heavy rainfall events will cause the ditches to overflow and run east along the railroad tracks as well as southeast under Wilson Road into a swampy area; both flows drain approximately 1000 feet into Chattanooga Creek (Refs. 2, 7).

Chattanooga Creek is a medium sized creek that has an average flow of 87 cubic feet per second. The creek flows approximately 6.0 miles north and enters the Tennessee River which has an average flow of 33,750 cubic feet per second. The 15-mile downstream target distance ends in the Tennessee River, which is dammed in this area and referred to as Nickajack Lake (Ref. 2, 29, 30).

The perched groundwater in Residue Hill contributes to two seeps, Piney Woods Spring to the south and a large swamp to the northeast of the property (Refs. 8, 31).

Piney Woods Spring is collected via french drain and discharged to the municipal sewer. Standing water and swampy conditions still exist, however, in the playground area. Piney Woods Spring has been documented to be contaminated with organics and metals thought to be migrating from Residue Hill. Comparing results at the seep for benzene, chlorobenzene and toluene from 1980 (pre cap), 1982 (post cap), and 1990 (present day) show declines in the levels of contamination. Dichlorobenzene however, is in higher concentrations and toluene and benzene are still high (Refs. 15, 16, 16A, 32). See Table 1 for a data summary. The large swampy area to the northeast of the site is not drained. It is unknown if the swampy area has been sampled.

Parts of Residue Hill lie in the 100 year flood plain, but the higher elevations are outside of the 500 year flood plain for Chattanooga Creek (Ref. 33).

4.2 Surface Water Targets

There are no surface water intakes located within the 15-mile surface water pathway. Hamilton County, the City of Chattanooga, and most of the surrounding area obtains water from a surface intake that is 4.7 miles upstream of the confluence of Nickajack Lake and Chattanooga Creek (Refs. 2, 34, 35). Portions of the 4-mile radius are served by the Walker County and Catoosa County water system. Walker County is served by the groundwater wells mentioned above, and by a surface water intake located at Crawfish Springs, 3.0 miles south of the hill. The intake is not in the surface water pathway (Ref. 2, 25, 26). The Catoosa County system is served by a surface water intake at Yates Spring, which is not located on the surface water pathway (Refs. 2, 36, 37).

Site-specific information regarding state and federally-endangered and threatened species was available. The dromedary pearly mussel (*Dromas dromas*), the ornate rocksnail (*Lithasia geniculate*), and the varicose rocksnail (*Lithasia verrucosda*) are located at 35° 05' 09" N latitude and 85° 20' 28" W longitude in Nickajack Lake within the 15-mile surface water pathway. The mussel is federally-endangered, while the snail species have been proposed for federal listing (Ref. 38). Although Chattanooga Creek has "no fishing" signs posted along its banks, recreational fishing has been observed (Ref. 39). Some commercial and much recreational fishing also occurs in the Tennessee River (Ref. 40). No wetlands have been identified along the 15-mile, surface water pathway, nor within a 0.5 mile radius of the site (Refs. 2).

4.3 Surface Water Conclusions

There are indications in the past of release to surface water. It is not clear whether a current heavy rainfall event which caused the drainage ditches on Residue Hill to overflow would release contaminants. An oily sheen was observed during the site reconnaissance on standing water in nearby drainage ditches that would receive the overflow during a large event. It is not known, however, if these slicks are related to Residue Hill (Ref. 3). Piney Woods Spring is contaminated and there is standing water visible in the playground area, despite the fact that the spring is routed to the city sewer (Ref. 3, picture N^o 12; 8; 36). The large seep in the swampy,

wooded area to the northeast, is unfenced and there is evidence of human presence in the woods (Ref. 3). Primary targets include fisheries in the Chattanooga Creek and Tennessee River.

5.0 Soil Exposure And Air Pathways

5.1 Physical Conditions

Since the capping project in 1980, grass has covered Residue Hill. The site is fenced with a large chain-link fence with barbed wire at the top. The access road has a heavy locked gate across it. The Piney Woods playground and the seep to the northeast are unfenced and easily accessible to the public (Ref. 3, Picture N^o 1). Additionally the formerly contaminated southeast runoff area is very close (less than 100 feet) from the housing project east of the site. The fence that separated the housing project and runoff area is now dilapidated and several holes are present, allowing easy access to the potentially contaminated area (Ref. 3, pictures 6, 7).

5.2 Soil and Air Targets

There are no residents or workers onsite. The nearest residential population is adjacent to the fenced property line of Residue Hill to the southeast, and the nearest school is located 300 feet northeast across Wilson Road. There are approximately 135 people living within 200 feet of the site that constitute a resident population and 115 people are employed at the Velsicol Chemical Plant on the northwest boundary of Residue Hill (Refs. 2, 6, 10). The Bachman's sparrow (*Aimophila aestivalis*), a state endangered species, is found within a 0.5 mile radius of the source (Ref. 38). There are 82,737 persons living within 4 miles of the site (Ref. 42).

In 1980, the existing cap of the landfill was breached as a result of heavy equipment operating on top of the cap and air releases were documented by the CHAPCB (Ref. 13). Therefore, any subsequent breach of the cap might also result in release of contaminants to air. The volatile organics may also pose a threat to air through releases from the two seeps.

5.3 Soil Exposure and Air Pathway Conclusions

The soil exposure pathway appears to pose a substantial threat due to the large resident population and the possible contact at the seep northeast of the site, the swampy runoff area southeast of the site and the Piney Woods playground seeps. There appears to be potential for

air exposure. In the event of a cap breach there is potential for release of contaminants to air. Additionally, the volatile organics may be releasing through the seeps.

6.0 Summary And Conclusions

The Residue Hill site was evaluated to assess the threat posed to human health and the environment and to determine the need for additional investigation. The surface water and soil exposure pathway are of primary concern. The surface water pathway is important due to the potential for human contact through consumption of fish from the creek, and the possible effect on federally endangered species. Additionally, the soil exposure pathway is of concern due to the proximity of the school and residences to the unfenced seep to the northwest; the southeast runoff area; and the Piney Woods Seeps accessibility to residents. From the information gathered for the Preliminary Assessment, it is recommended that there be further action for the site.

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Photo Documentation Log

All Photos taken by Erik Lombard, Project Manager, during Site reconnaissance of Residue Hill, February 4, 1992.

Number	Description
1	Looking NW through fence
2	Perimeter fence and houses to South
3	Housing Authority project to East
4	Swamp East of SE overflow point
5	Bulldozer tracks in SE swamp
6	Hole in fence in SE swamp
7	Fence torn down in SE swamp
8	Standing water in SE swamp
9	Piney Woods Play Ground -- looking West
10	Piney Woods Play Ground -- looking West
11	Piney Woods Play Ground spring
12	Piney Woods Play Ground standing water
13	Drainage patch for Piney Woods Play Ground spring
14	Standing water on North edge of Piney Woods Play Ground
15	Dead grass in back yard of resident on North border of Piney Play Ground

POOR LEGIBILITY

**PORTIONS OF THIS DOCUMENT
MAY BE UNREADABLE, DUE TO
THE QUALITY OF THE
ORIGINAL**

Picture # 1



Picture # 2



Picture # 3



Picture # 4



Picture # 5



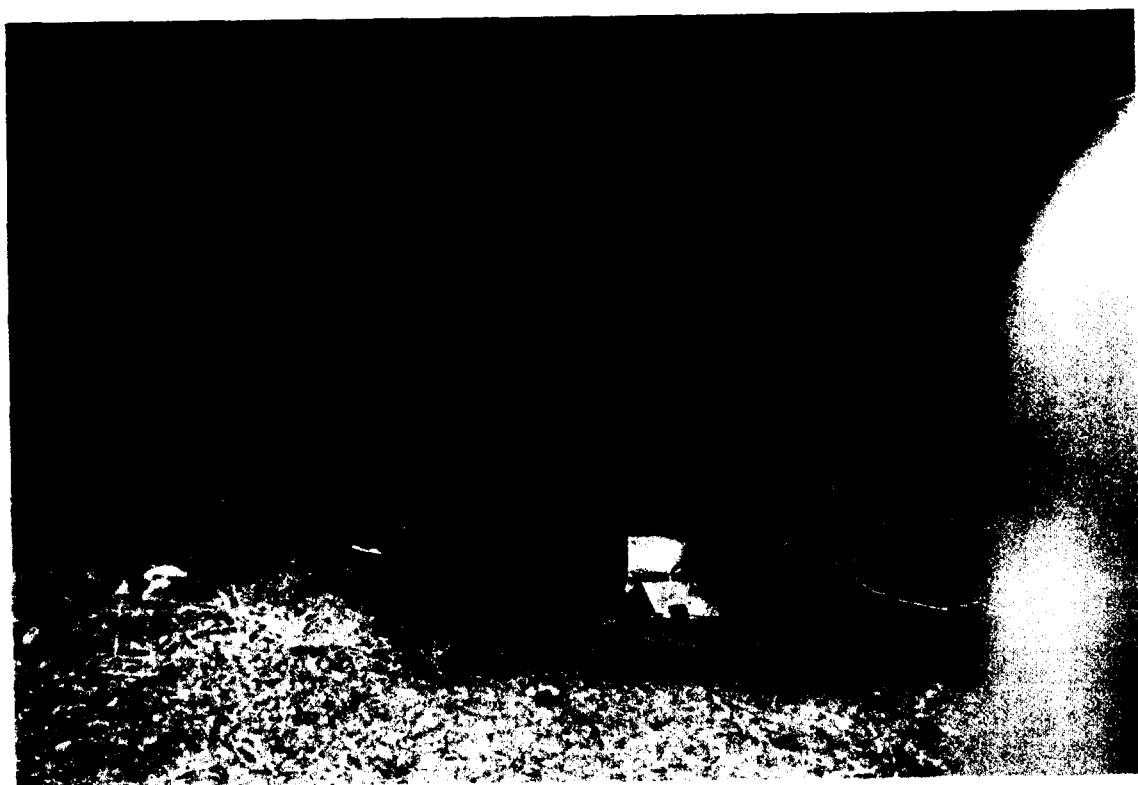
Picture # 6



Picture # 7



Picture # 8



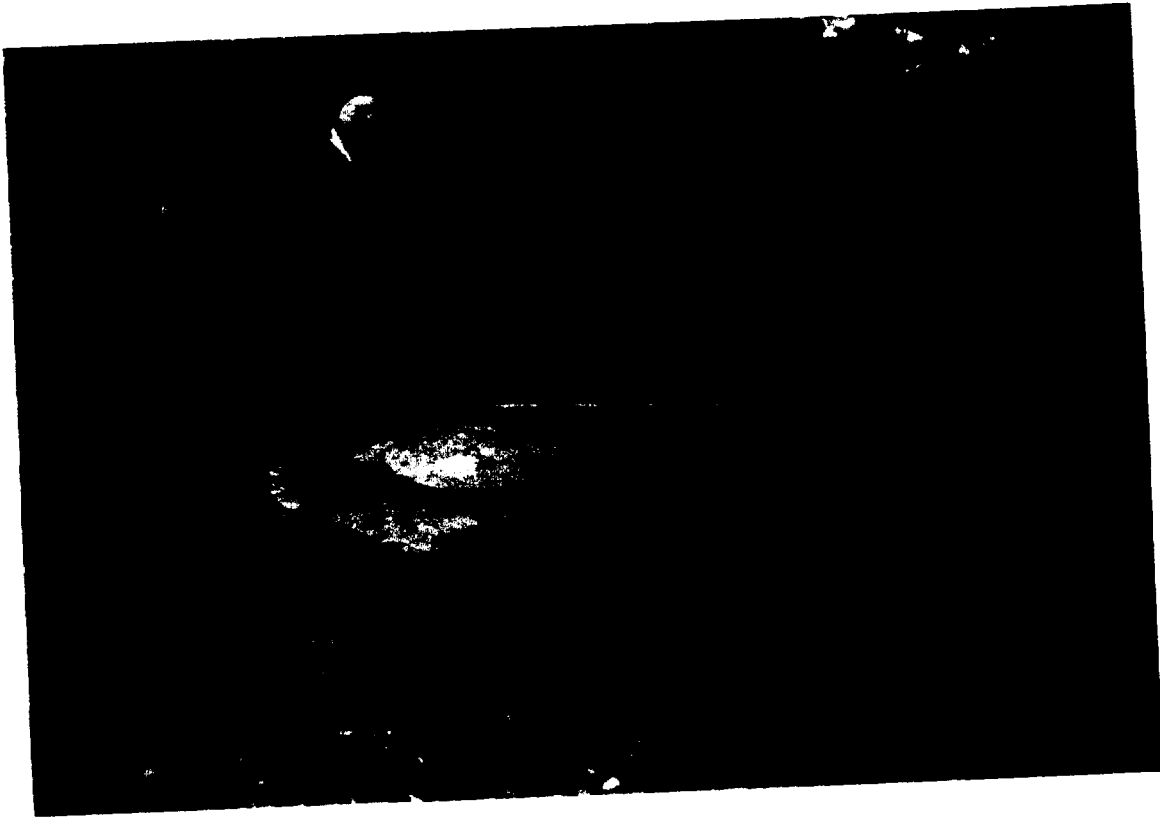
Picture # 9



Picture # 10



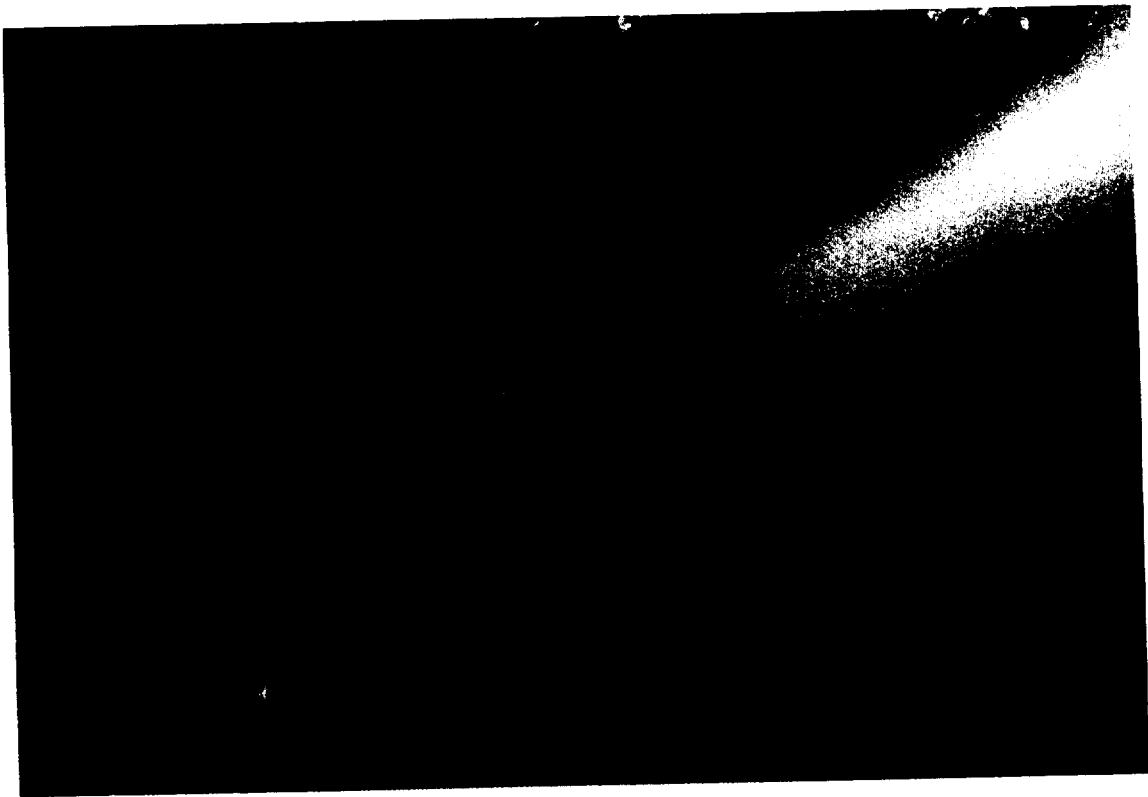
Picture # 11



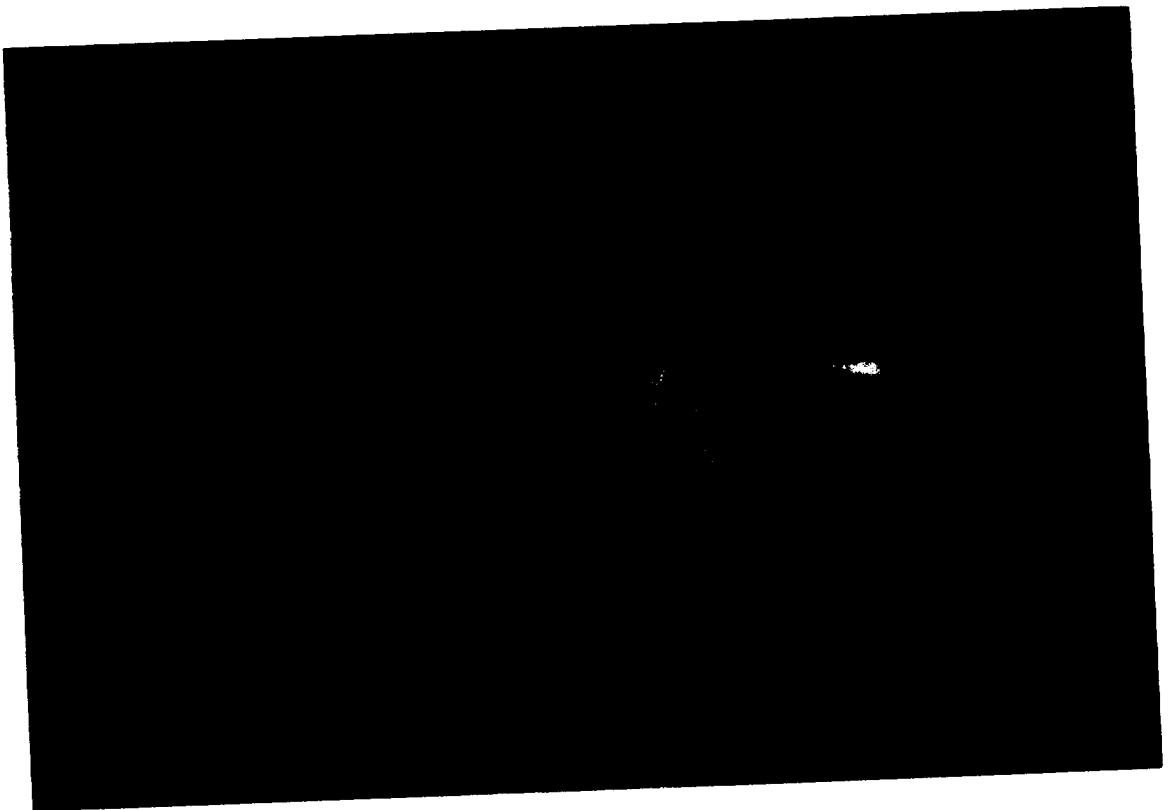
Picture # 12



Picture # 13



Picture # 14



Picture # 15



REGION: 04
STATE : TN

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF EMERGENCY AND REMEDIAL RESPONSE
C E R C L I S V 1.2

PAGE: 221
RUN DATE: 06/29/87
RUN TIME: 11:41:36

M.2 - SITE MAINTENANCE FORM

EPA ID : TND100842400		* ACTION: _	*		
SITE NAME: PINEY WOODS PLAYGROUND	SOURCE: R	* _____	*		
STREET : WILSON RD & CENTRAL AVE	CONG DIST: 03	* _____	*		
CITY : CHATTANOOGA	ZIP: 37410	* _____	*		
CNTY NAME: HAMILTON	CNTY CODE : 065	* _____	*		
LATITUDE : 34/59/20.0	LONGITUDE : 085/18/50.0	* _/_/_.	*		
LL-SOURCE: R	LL-ACCURACY:	* _	*		
SMSA : 1560	HYDRO UNIT: 06020001	* _____	*		
INVENTORY IND: Y	REMEDIAL IND: Y	REMOVAL IND: N	FED FAC IND: N	* _ _ _ _	*
NPL IND: N	NPL LISTING DATE:	NPL DELISTING DATE:		* _ _/_ _/_	*
SITE/SPILL IDS:		* _ _ _ _	*		
RPM NAME:	RPM PHONE: - -	* _____	*		
SITE CLASSIFICATION:		SITE APPROACH:	* _	*	
DIOXIN TIER:	REG FLD1:	REG FLD2:	* _ _ _ _	*	
RESP TERM: PENDING ()	NO FURTHER ACTION ()		* PENDING (_)	NO FURTHER ACTION (_)	*
ENF DISP: NO VIABLE RESP PARTY ()	VOLUNTARY RESPONSE ()		* _ _	*	
ENFORCED RESPONSE ()	COST RECOVERY ()		* _ _	*	
SITE DESCRIPTION:		* _____			*
		* _____			*
		* _____			*
		* _____			*

REGION: 04
STATE : TN

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF EMERGENCY AND REMEDIAL RESPONSE
C E R C L I S V 1.2

PAGE: 222
RUN DATE: 06/29/87
RUN TIME: 11:41:36

M.2 - PROGRAM MAINTENANCE FORM

SITE: PINEY WOODS PLAYGROUND

EPA ID: TND100842400 PROGRAM CODE: H01 PROGRAM TYPE:

PROGRAM QUALIFIER: ALIAS LINK :

PROGRAM NAME: SITE EVALUATION

DESCRIPTION:

* ACTION: _

* _ *

* _ *

* _ *

* _ *

* _ *

* _ *

REGION: 04
STATE : TN

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF EMERGENCY AND REMEDIAL RESPONSE
C E R C L I S V 1.2

PAGE: 223
RUN DATE: 06/29/87
RUN TIME: 11:41:36

M.2 - EVENT MAINTENANCE FORM

SITE: PINEY WOODS PLAYGROUND
PROGRAM: SITE EVALUATION

EPA ID: TND100842400 PROGRAM CODE: H01

EVENT TYPE: DS1

FMS CODE: EVENT QUALIFIER :

EVENT LEAD: E

EVENT NAME: DISCOVERY

STATUS:

DESCRIPTION:

* ACTION: _

ORIGINAL

CURRENT

ACTUAL

START:

START:

START:

COMP :

COMP :

COMP : 06/01/84

HQ COMMENT:

RG COMMENT:

COOP AGR #

AMENDMENT #

STATUS

STATE X

0

REGION: 04
STATE : TN

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF EMERGENCY AND REMEDIAL RESPONSE
C E R C L I S V 1.2

PAGE: 224
RUN DATE: 06/29/87
RUN TIME: 11:41:36

M.2 - EVENT MAINTENANCE FORM

* ACTION: _

SITE: PINEY WOODS PLAYGROUND
PROGRAM: SITE EVALUATION

EPA ID: TND100842400 PROGRAM CODE: H01

EVENT TYPE: PA1

FMS CODE: EVENT QUALIFIER :

EVENT LEAD: S

EVENT NAME: PRELIMINARY ASSESSMENT

STATUS:

DESCRIPTION:

* _ _ _ _ _ *

* _ _ _ _ _ *

* _ _ _ _ _ *

* _ _ _ _ _ *

* _ _ _ _ _ *

ORIGINAL	CURRENT	ACTUAL
START:	START:	START:
COMP :	COMP :	COMP : 06/08/87

* _/_/_/_ _/_/_/_ _/_/_/_ *

* _/_/_/_ _/_/_/_ _/_/_/_ *

HQ COMMENT:

* _ _ _ _ _ *

RG COMMENT:

* _ _ _ _ _ *

COOP AGR #	AMENDMENT #	STATUS	STATE %
			0

* _ _ _ _ _ *

REGION: 04
STATE : TN

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF EMERGENCY AND REMEDIAL RESPONSE
C E R C L I S V 1.2

PAGE: 225
RUN DATE: 06/29/87
RUN TIME: 11:41:36

M.2 - EVENT MAINTENANCE FORM

SITE: PINEY WOODS PLAYGROUND
PROGRAM: SITE EVALUATION

EPA ID: TND100842400 PROGRAM CODE: H01

EVENT TYPE: SI1

FMS CODE: EVENT QUALIFIER :

EVENT LEAD: E

EVENT NAME: SITE INSPECTION

STATUS:

DESCRIPTION:

* ACTION: _

* _ _ _ _ _ *

* _ _ _ _ _ *

* _ _ _ _ _ *

* _ _ _ _ _ *

ORIGINAL	CURRENT	ACTUAL
START:	START:	START: 11/01/83
COMP :	COMP :	COMP : 06/01/84

* _/_/_ _/_/_ _/_/_ *

* _/_/_ _/_/_ _/_/_ *

HQ COMMENT:

* _ _ _ _ _ *

RG COMMENT:

* _ _ _ _ _ *

COOP AGR # AMENDMENT # STATUS STATE %

0

* _ _ _ _ _ *

REGION: 04
STATE : TN

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF EMERGENCY AND REMEDIAL RESPONSE
C E R C L I S V 1.2

PAGE: 226
RUN DATE: 06/29/87
RUN TIME: 11:41:36

M.2 - REGIONAL UTILITY MAINTENANCE FORM

SITE: PINEY WOODS PLAYGROUND

EPA ID: TND100842400

REG CODE: 4PHR-01

DESCRIPTION: PRELIMINARY HRS

DATE1:

DATE2:

DATE3:

FREE FIELD: 04.8

* ACTION: _

* _____ *

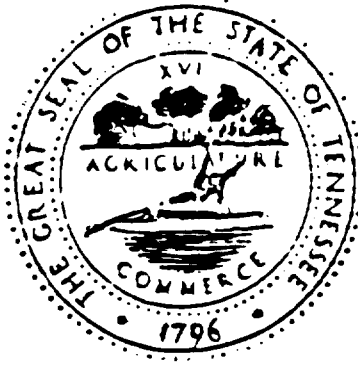
* _____ *

* _/_/_/ _ *

* _/_/_/ _ *

* _/_/_/ _ *

* _____ *



Potential Hazardous Waste Site

PRELIMINARY ASSESSMENT

PINEY WOODS PLAYGROUND

TND 100842400

CHATTANOOGA, HAMILTON COUNTY, TENNESSEE

CPH

PINEY WOODS PLAYGROUND

TND 100842400

RCRA STATUS SUMMARY

The Piney Woods Playground site is not and has not ever been a permitted treatment storage or disposal facility for hazardous waste. The area is a community playground and softball field which has a spring onsite. There is no evidence that waste was ever actually deposited on this site; rather the contamination present here is thought to be the result of migration from a waste disposal site located on the property of a chemical manufacturing company nearby. However, this allegation is in dispute and has not been resolved. The chemical company disposal facility, known as Velsicol/"Residue Hill," is a designated Superfund site and has had remedial action performed under CERCLA by the responsible party. The site is presently in the monitoring and maintenance phase.

Unless it can be positively determined by further investigation that the contamination at Piney Woods Playground has in fact migrated there from the Residue Hill site and the boundaries of that site extended to include the Piney Woods spring, the Piney Woods Playground must be considered a separate site. As such, it would not meet the definition of a RCRA facility and would be subject to regulation under CERCLA.

GC/ah/SF #5

Piney Woods Playground

TND 100842400

Preliminary Assessment Narrative

The Piney Woods Playground site is a 3.9 acre area in southwest Chattanooga which has been found to be contaminated with hazardous chemicals. The source of these chemicals has not been positively established, but it is thought that they have migrated via groundwater from a known chemical waste disposal area about 1200 feet northeast of the site to a spring located onsite and subsequently into soil and sediment onsite.

This site is owned by the city of Chattanooga and is used as a neighborhood park and playground by the Piney Woods Homeowners Association. It is identified as tract 167 N-E-037 on the city property maps, and is listed in Book 1387, page 50, in the office of the Register of Deeds for Hamilton County. The site contains a softball diamond, restrooms, bleacher seats, and a basketball court. A small spring arises onsite and flows approximately 200 feet before reentering the ground. There is no history of the site ever having been used as a disposal site, leading to the assumption that contamination found here has migrated from elsewhere.

The site is located in the Alton Park section of Chattanooga, approximately 0.4 mile north of the Tennessee-Georgia state line. A significant portion of the one-mile radius lies in Georgia. The area surrounding the site is a mix of industry and older, low-income residential uses. The entire area is served by the Tennessee-American Water Company from an intake several miles upstream on the Tennessee River. Several industrial process and cooling water wells are in use in the area, but there are no known domestic groundwater wells presently in use. This is an older residential area and the possibility of old wells still being used cannot be discounted, but the likelihood is small.

This section of Chattanooga has been heavily industrialized for many years, and numerous abandoned hazardous waste disposal sites have been identified. Chattanooga Creek drains this area, and is heavily polluted from many years of industrial discharges and drainage from the numerous waste disposal sites along its banks. Chattanooga Creek is not a source of drinking or industrial process water, but there is documented use of the creek for fishing, wading, etc. by neighborhood children.

In 1980, after the pollution of the spring had been brought to the attention of TDHE and Chattanooga city officials by Piney Woods area residents, the city and Velsicol Chemical Company undertook to collect the contaminated effluent from the spring and route it to the city sewer system. A basin was constructed with a French Drain and a PVC pipe to convey the pooled water to a sewer manhole and the spring area was capped with clay. This action served to reduce the likelihood of persons coming into contact with the contaminated water or sediments. However, contaminated soil remains on the playing areas where persons using the park may be exposed via direct contact.

There are no figures on the number of persons who use the playground, but it is reasonable to assume that people living within one mile may use it from time to time. An analysis of population figures from the 1980 Census for census tracts 19 and 23, and the percent area of each tract included in a 1-mile radius from the site gives an estimated population within one mile of approximately 6,000 persons.

The site lies in the 100-year flood plain of Chattanooga Creek. It is underlain by urban complex soils of the Arents series, which have been extensively modified through cultural activity and the original character lost. The geology of the area is complex, having been extensively folded and faulted during the Appalachian uplift. The area where this site is

located is underlain by the Chickamauga Limestone, a calcareous formation in which water occurs chiefly in fractures and fissures which tend to enlarge by solution. The area has numerous flooded clay pits and evidence exists of extensive underground streams at depths of 40-50 feet below ground level. There is some evidence of Karst features, and the disappearance of the original spring branch after flowing about 200 feet from the spring site indicates presence of a groundwater recharge area onsite.

Since this site has no history as a waste disposal site, and presence of hazardous material was verified only by analysis of samples, a waste quantity is impossible to estimate. Therefore, a quantity of one drum will be used for ranking purposes. Since the presence of hazardous material was confirmed in the spring effluent, and since this is the presumed route of migration to this site, a release to groundwater will be scored.

Some remedial action has been performed at this site, and the potential for further migration via groundwater, surface water or air would likely not be affected by further work at this site. The absence of target populations for ground and surface water migration renders the exposure risk low for these routes. Due to the continuing risk of population exposure via direct contact with possibly contaminated soil, follow-up inspection as resources and time are available would be indicated. Accordingly, a low priority for site inspection is recommended.

GC/ah/SF #5

Piney Woods Playground

TND 100842400

Preliminary Assessment

Data Source List

1. Memo; M. J. Higgs and M. E. Dew to TDSF/SIU files; January 25, 1984.
2. Geologic Assessment of proposed demolition waste disposal site near Piney Woods; by J. M. Hines, TDSWM; January 2, 1979.
3. Letter; R. D. Green of USEPA to Philip Stewart, TDWQC; June 27, 1980; with attached letter and sample analysis report from Velsicol Chemical Corporation.
4. Letter; S. W. Harvey of USEPA to J. M. Rademacher of Velsicol Chemical Corporation; May 19, 1980.
5. Letter; Philip L. Stewart of TDWQC to W. D. Phelps of Velsicol Chemical Corporation; July 3, 1980.
6. Memo; Phil Stewart, TDWQC to TDWQC files; "Piney Woods Spring, Chattanooga"; July 10, 1980.
7. Memo; Phil Stewart, TDWQC to TDWQC files; "Piney Woods Spring, Hamilton County"; July 14, 1980.
8. Memo; Phil Stewart, TDWQC to TDWQC files; "Piney Woods Playground Soil Contamination Sampling Project"; August 23, 1983.

9. Memo; Jack McCormick, TDWQC to TDWQC files and Phil Stewart; "EPA Soil Sampling at Piney Wood Ball Field, Chattanooga"; November 14, 1983.
10. Hazardous Waste Site Investigation - Piney Woods Playground, Chattanooga, Tennessee; USEPA; May 31, 1984.
11. Geologic Map of Hamilton County, Tennessee; by Milici, et. al.; Tennessee Department of Conservation; Division of Geology Bulletin 79, Plate 1; 1978.

GC/ah/SF #5



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
TN D 100842400

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) Piney Woods Playground		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER Off Polk Ave. S. of 52nd Street			
03 CITY Chattanooga	04 STATE TN	05 ZIP CODE 37410	06 COUNTY Hamilton	07 COUNTY CODE	08 CONG DIST 3
09 COORDINATES LATITUDE 34 59 20 N		LONGITUDE 085 18 50 W			

10 DIRECTIONS TO SITE (Starting from nearest public road)

From Wilson Road in Alton Park, west on 52nd Street, S. on Fagan St., E. on Halsey Street, N. on Polk Avenue; park is at N. end of this section of Polk Avenue.

III. RESPONSIBLE PARTIES

01 OWNER (If owner) City of Chattanooga		02 STREET (Business, mailing, residential) City Hall			
03 CITY Chattanooga	04 STATE TN	05 ZIP CODE 37402	06 TELEPHONE NUMBER ()		
07 OPERATOR (If known and different from owner) Piney Woods Homeowners Ass'n.		08 STREET (Business, mailing, residential)			
09 CITY Chattanooga	10 STATE TN	11 ZIP CODE 37410	12 TELEPHONE NUMBER ()		

13 TYPE OF OWNERSHIP (Check one)

☐ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☒ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☐ A. RCRA 3001 DATE RECEIVED: _____ MONTH DAY YEAR ☐ B. UNCONTROLLED WASTE SITE (CFR 40.103 c) DATE RECEIVED: _____ MONTH DAY YEAR ☒ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION <input checked="" type="checkbox"/> YES DATE 11/21/83 MONTH DAY YEAR <input type="checkbox"/> NO		BY (Check all that apply) <input type="checkbox"/> A. EPA <input type="checkbox"/> B. EPA CONTRACTOR <input type="checkbox"/> C. STATE <input type="checkbox"/> D. OTHER CONTRACTOR <input type="checkbox"/> E. LOCAL HEALTH OFFICIAL <input type="checkbox"/> F. OTHER: _____ (Specify) CONTRACTOR NAME(S): _____			
--	--	---	--	--	--

02 SITE STATUS (Check one) <input type="checkbox"/> A. ACTIVE <input checked="" type="checkbox"/> B. INACTIVE <input type="checkbox"/> C. UNKNOWN	03 YEARS OF OPERATION Unknown 1984 BEGINNING YEAR ENDING YEAR	<input type="checkbox"/> UNKNOWN
--	---	----------------------------------

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
Spring and playground possibly contaminated with lead, arsenic, mercury, xylene, chlorotoluene, and pesticides from a chemical company dump approximately 1200 feet NE of site.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
Spring effluent has been drained to city sewer, but contaminated soil and sediment may remain. Principal hazard would be direct contact and inhalation/ingestion of contaminated dust from playground.

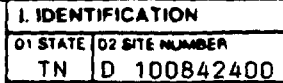
V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (inspection required promptly) ☐ B. MEDIUM (inspection required) ☒ C. LOW (inspect on time available basis) ☐ D. NONE (no further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT George Kurz	02 OF (Agency/Organization) City of Chattanooga	03 TELEPHONE NUMBER (615) 757-5180
04 PERSON RESPONSIBLE FOR ASSESSMENT G.S. Caruthers	05 AGENCY TDSF	06 ORGANIZATION TDHE
07 TELEPHONE NUMBER (615) 741-6287		08 DATE 5/12/87 MONTH DAY YEAR



01 PHYSICAL STATES (Check all that apply) <input type="checkbox"/> A. SOLID <input type="checkbox"/> B. POWDER, FINES <input type="checkbox"/> C. SLUDGE <input checked="" type="checkbox"/> D. OTHER <u>soil</u> <small>(Specify)</small>	02 WASTE QUANTITY AT SITE <small>(Measure of waste quantities must be independent)</small> TONS _____ CUBIC YARDS _____ NO. OF DRUMS _____	03 WASTE CHARACTERISTICS (Check all that apply) <table border="0"> <tr> <td> <input checked="" type="checkbox"/> A. TOXIC <input type="checkbox"/> B. CORROSIVE <input type="checkbox"/> C. RADIOACTIVE <input checked="" type="checkbox"/> D. PERSISTENT </td> <td> <input checked="" type="checkbox"/> E. SOLUBLE <input type="checkbox"/> F. INFECTIOUS <input checked="" type="checkbox"/> G. FLAMMABLE <input type="checkbox"/> H. IGNITABLE </td> <td> <input type="checkbox"/> I. HIGHLY VOLATILE <input type="checkbox"/> J. EXPLOSIVE <input type="checkbox"/> K. REACTIVE <input type="checkbox"/> L. INCOMPATIBLE <input type="checkbox"/> M. NOT APPLICABLE </td> </tr> </table>	<input checked="" type="checkbox"/> A. TOXIC <input type="checkbox"/> B. CORROSIVE <input type="checkbox"/> C. RADIOACTIVE <input checked="" type="checkbox"/> D. PERSISTENT	<input checked="" type="checkbox"/> E. SOLUBLE <input type="checkbox"/> F. INFECTIOUS <input checked="" type="checkbox"/> G. FLAMMABLE <input type="checkbox"/> H. IGNITABLE	<input type="checkbox"/> I. HIGHLY VOLATILE <input type="checkbox"/> J. EXPLOSIVE <input type="checkbox"/> K. REACTIVE <input type="checkbox"/> L. INCOMPATIBLE <input type="checkbox"/> M. NOT APPLICABLE
<input checked="" type="checkbox"/> A. TOXIC <input type="checkbox"/> B. CORROSIVE <input type="checkbox"/> C. RADIOACTIVE <input checked="" type="checkbox"/> D. PERSISTENT	<input checked="" type="checkbox"/> E. SOLUBLE <input type="checkbox"/> F. INFECTIOUS <input checked="" type="checkbox"/> G. FLAMMABLE <input type="checkbox"/> H. IGNITABLE	<input type="checkbox"/> I. HIGHLY VOLATILE <input type="checkbox"/> J. EXPLOSIVE <input type="checkbox"/> K. REACTIVE <input type="checkbox"/> L. INCOMPATIBLE <input type="checkbox"/> M. NOT APPLICABLE			

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS	unknown		in spring water and sediment
PSD	PESTICIDES	unknown		in playground soil
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unknown		in playground soil

[illegible]

CATEGORY	D1 FEEDSTOCK NAME	D2 CAS NUMBER	CATEGORY	D1 FEEDSTOCK NAME	D2 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

EPA FORM 2070-12 (7-81)



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
TN D 100842400

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: unknown 04 NARRATIVE DESCRIPTION

A spring on this site is allegedly contaminated by waste deposited offsite. Use of ground water within 3 miles is for industrial process and cooling water. No known domestic use.

01 ☒ B. SURFACE WATER CONTAMINATION 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 6,000 04 NARRATIVE DESCRIPTION

Runoff from spring formerly went to Chattanooga Creek, heavily contaminated by numerous hazardous waste disposal sites. Chattanooga Creek is used by local residents for fishing and recreation. Population cited is that estimated within 1 mile.

01 ☐ C. CONTAMINATION OF AIR 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Not Observed.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

N/A

01 ☒ E. DIRECT CONTACT 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 6,000 04 NARRATIVE DESCRIPTION

Contaminated soil is present on a playground heavily used by local residents, especially children. Population cited is that estimated within 1 mile.

01 ☒ F. CONTAMINATION OF SOIL 02 ☒ OBSERVED (DATE: 11/23/83) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 3.9 04 NARRATIVE DESCRIPTION
(ACRES)

Soil contamination detected by EPA sampling on above date.

01 ☐ G. DRINKING WATER CONTAMINATION 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

N/A

01 ☐ H. WORKER EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

N/A

01 ☒ I. POPULATION EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 6,000 04 NARRATIVE DESCRIPTION

Contact with contaminated spring effluent, sediment or soil could affect users of the playground. Population cited is that estimated within 1 mile.



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 100842400

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
Not observed.

01 ☒ K. DAMAGE TO FAUNA 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☒ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)
Aquatic life in the spring, presumed to exist prior to contamination, is no longer present.

01 ☐ L. CONTAMINATION OF FOOD CHAIN 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
Not observed.

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☒ ALLEGED
(Spills/runoff/standing liquids/leaking drums)
03 POPULATION POTENTIALLY AFFECTED: 6,000 04 NARRATIVE DESCRIPTION
Contamination on this site is thought to have migrated from one or more documented disposal sites in the area. Population cited is that estimated within 1 mile.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
Not observed.

01 ☒ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
Effluent from spring has been contained and routed to Chattanooga municipal sewer system.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
Not observed at this site.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 6,000

IV. COMMENTS

This site is thought to be hydrologically connected to "Residue Hill", an inactive hazardous waste disposal site formerly operated by Velsicol Chemical Co. approximately 1200 ft. north of the playground.

V. SOURCES OF INFORMATION (Cite specific references, e. g., state tests, sample analysis, reports)

TDSF/SIU files; USGS topographic maps; 1980 Census; Chatt.-Hamilton Co. Regional Planning Comm. Neighborhood Analysis Report.

CHATTANOOGA, TENN.

N3500-W8515/7.5

1969

PHOTOREVISED 1976

AMS 3954 III SE-SERIES V841

SCALE 1:24 000

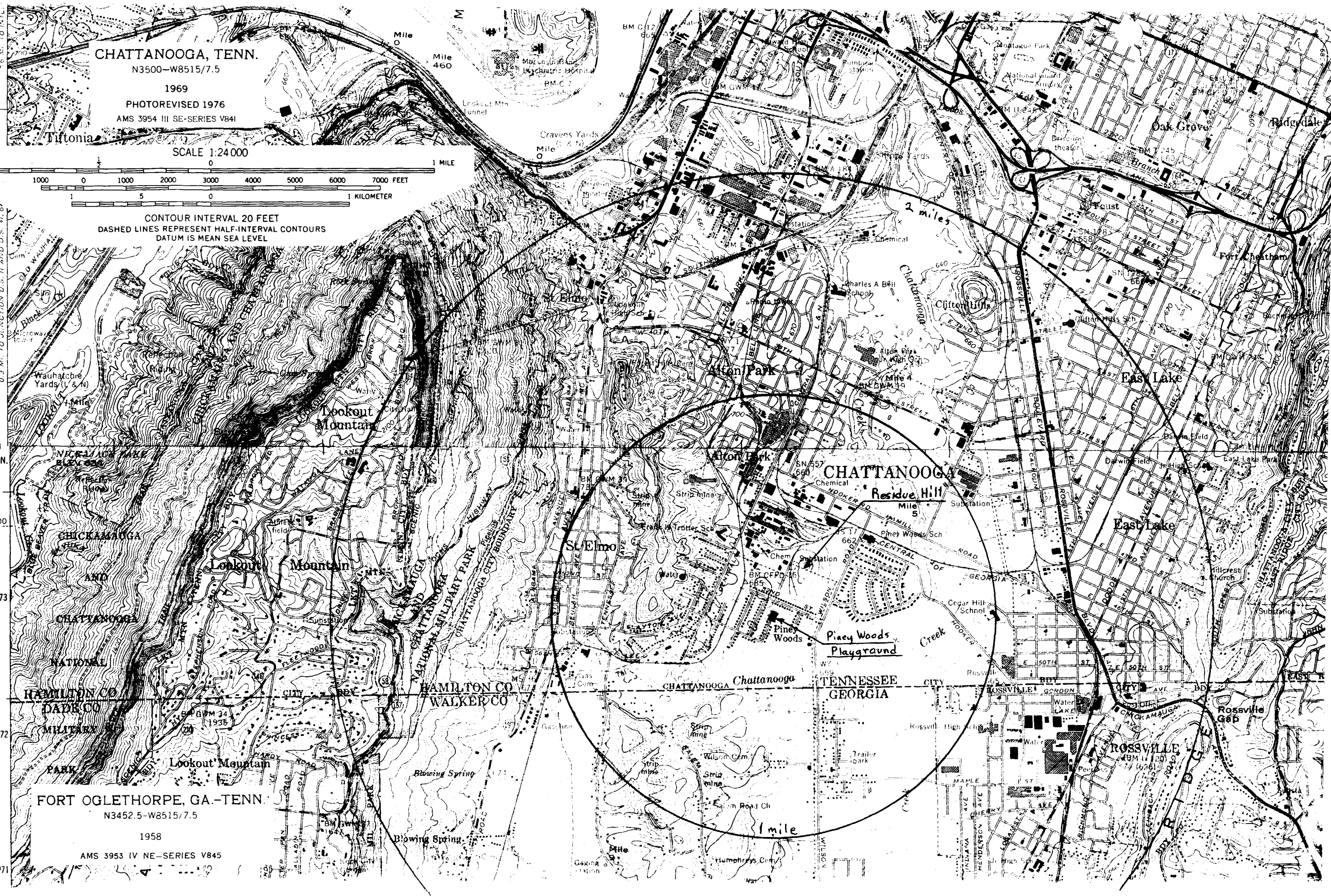
CONTOUR INTERVAL 20 FEET
DASHED LINES REPRESENT HALF-INTERVAL CONTOURS
DATUM IS MEAN SEA LEVEL

FORT OGLETHORPE, GA.-TENN.

N3452.5-W8515/7.5

1958

AMS 3953 IV NE-SERIES V845



NOT IN ENRIS
By THIS NAME

Kopotic



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE TN 02 SITE NUMBER

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) PINEY WOODS PLAYGROUND 02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER Wilson Road and Central Avenue
03 CITY CHATTANOOGA 04 STATE TN 05 ZIP CODE 06 COUNTY Hamilton 07 COUNTY CODE 08 CONG DIST
09 COORDINATES LATITUDE 34° 59' 19" LONGITUDE 85° 18' 48" 10 TYPE OF OWNERSHIP (Check one)
☐ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER ☒ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION 11/21/83 02 SITE STATUS ☐ ACTIVE ☒ INACTIVE 03 YEARS OF OPERATION Never was an active site
MONTH DAY YEAR BEGINNING YEAR ENDING YEAR UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☒ A. EPA ☐ B. EPA CONTRACTOR (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR (Name of firm)
☐ E. STATE ☐ F. STATE CONTRACTOR (Name of firm) ☐ G. OTHER (Specify)

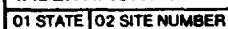
05 CHIEF INSPECTOR <u>Jim Kopotic</u>	06 TITLE <u>Environmental Scientist</u>	07 ORGANIZATION <u>US-EPA</u>	08 TELEPHONE NO. <u>(404) 546-3351</u> <u>FTS 250-3351</u>
09 OTHER INSPECTORS <u>Dan Phelps</u>	10 TITLE <u>Environmental Manager</u>	11 ORGANIZATION <u>Velsicol</u>	12 TELEPHONE NO. <u>(615) 821-6521</u>
<u>Lewis Cox</u>	<u>Environmental Technician</u>	<u>Velsicol</u>	<u>(615) 821-6521</u>
			()
			()
			()

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO. ()
			()
			()
			()
			()
			()
			()
			()

17 ACCESS GAINED BY (Check one) ☒ PERMISSION ☐ WARRANT Kopotic 18 TIME OF INSPECTION 1230 to 1600 19 WEATHER CONDITIONS Cool (55° to 65°F) - clear to partly cloudy

IV. INFORMATION AVAILABLE FROM

01 CON. ACT <u>Richard Green</u>	02 OF (Agency/Organization) <u>US-EPA SSES</u>	03 TELEPHONE NO. <u>(404) 581-2234</u> <u>FTS 252-2234</u>		
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM <u>Jim Kopotic</u>	05 AGENCY <u>US-EPA</u>	06 ORGANIZATION <u>HW S</u>	07 TELEPHONE NO. <u>404-546-3351</u> <u>FTS 250-3351</u>	08 DATE <u>6/22/84</u> MONTH DAY YEAR



☐ I. HIGHLY VOLATILE
☐ J. EXPLOSIVE
☐ K. REACTIVE
☐ L. INCOMPATIBLE
☐ M. NOT APPLICABLE



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION (*Slight*)
03 POPULATION POTENTIALLY AFFECTED: *Yes*

02 ☒ OBSERVED (DATE: *11-21-83*) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Piney Woods Playground is located south and in the direction of groundwater movement from Velpids Residue Hills. There is the potential for further groundwater contamination to occur as a result of materials disposed of at Residue Hills. The playground is used by local citizens of Chattanooga.

01 ☒ B. SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: _____

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Due to the geology of the area, during periods of persistent heavy rainfall, outcrops or seeps occur in the area.

01 ☐ C. CONTAMINATION OF AIR

03 POPULATION POTENTIALLY AFFECTED: _____

02 ☐ OBSERVED (DATE: _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS

03 POPULATION POTENTIALLY AFFECTED: _____

02 ☐ OBSERVED (DATE: _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

01 ☒ E. DIRECT CONTACT

03 POPULATION POTENTIALLY AFFECTED: _____

02 ☐ OBSERVED (DATE: _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

Children use the area.

01 ☒ F. CONTAMINATION OF SOIL

03 AREA POTENTIALLY AFFECTED: *1.0*
(Acres)

02 ☐ OBSERVED (DATE: _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

This is the approximate size of the playground.

01 ☐ G. DRINKING WATER CONTAMINATION

03 POPULATION POTENTIALLY AFFECTED: _____

02 ☐ OBSERVED (DATE: _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

01 ☐ H. WORKER EXPOSURE/INJURY

03 WORKERS POTENTIALLY AFFECTED: _____

02 ☐ OBSERVED (DATE: _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED

01 ☐ I. POPULATION EXPOSURE/INJURY

03 POPULATION POTENTIALLY AFFECTED: _____

02 ☐ OBSERVED (DATE: _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL ☐ ALLEGED



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ K. DAMAGE TO FAUNA
04 NARRATIVE DESCRIPTION (Include name(s) of species)

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ L. CONTAMINATION OF FOOD CHAIN
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES
(Spills/Runoff/ Standing liquids, Leaking drums)

03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ N. DAMAGE TO OFFSITE PROPERTY
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis reports)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION
01 STATE 02 SITE NUMBER

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
<input type="checkbox"/> A. NPDES				
<input type="checkbox"/> B. UIC				
<input type="checkbox"/> C. AIR				
<input type="checkbox"/> D. RCRA				
<input type="checkbox"/> E. RCRA INTERIM STATUS				
<input type="checkbox"/> F. SPCC PLAN				
<input type="checkbox"/> G. STATE (Specify)				
<input type="checkbox"/> H. LOCAL (Specify)				
<input type="checkbox"/> I. OTHER (Specify)				
<input type="checkbox"/> J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE	04 TREATMENT (Check all that apply)	05 OTHER
<input type="checkbox"/> A. SURFACE IMPOUNDMENT			<input type="checkbox"/> A. INCINERATION	<input type="checkbox"/> A. BUILDINGS ON SITE
<input type="checkbox"/> B. PILES			<input type="checkbox"/> B. UNDERGROUND INJECTION	
<input type="checkbox"/> C. DRUMS, ABOVE GROUND			<input type="checkbox"/> C. CHEMICAL/PHYSICAL	
<input type="checkbox"/> D. TANK, ABOVE GROUND			<input type="checkbox"/> D. BIOLOGICAL	
<input type="checkbox"/> E. TANK, BELOW GROUND			<input type="checkbox"/> E. WASTE OIL PROCESSING	
<input type="checkbox"/> F. LANDFILL			<input type="checkbox"/> F. SOLVENT RECOVERY	06 AREA OF SITE
<input type="checkbox"/> G. LANDFARM			<input type="checkbox"/> G. OTHER RECYCLING/RECOVERY	_____ (Acres)
<input type="checkbox"/> H. OPEN DUMP			<input type="checkbox"/> H. OTHER (Specify)	
<input type="checkbox"/> I. OTHER (Specify)				

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ☐ NO

02 COMMENTS

Public Playground

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE 02 SITE NUMBER

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)			02 STATUS			03 DISTANCE TO SITE	
	SURFACE	WELL	ENDANGERED	AFFECTED	MONITORED		
COMMUNITY	A. <input type="checkbox"/>	B. <input type="checkbox"/>	A. <input type="checkbox"/>	B. <input type="checkbox"/>	C. <input type="checkbox"/>	A. _____ (mi)	
NON-COMMUNITY	C. <input type="checkbox"/>	D. <input type="checkbox"/>	D. <input type="checkbox"/>	E. <input type="checkbox"/>	F. <input type="checkbox"/>	B. _____ (mi)	

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING
(Other sources available)
COMMERCIAL, INDUSTRIAL, IRRIGATION
(No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION
(Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER _____		03 DISTANCE TO NEAREST DRINKING WATER WELL _____ (mi)	
04 DEPTH TO GROUNDWATER _____ (ft)	05 DIRECTION OF GROUNDWATER FLOW _____	06 DEPTH TO AQUIFER OF CONCERN _____ (ft)	07 POTENTIAL YIELD OF AQUIFER _____ (gpd)
08 SOLE SOURCE AQUIFER <input type="checkbox"/> YES <input type="checkbox"/> NO			
09 DESCRIPTION OF WELLS (including usage, depth, and location relative to population and buildings) _____ _____ _____			
10 RECHARGE AREA <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS _____		11 DISCHARGE AREA <input type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS _____	

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☐ A. RESERVOIR, RECREATION
DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY
IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
_____	<input type="checkbox"/>	_____ (mi)
_____	<input type="checkbox"/>	_____ (mi)
_____	<input type="checkbox"/>	_____ (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN			02 DISTANCE TO NEAREST POPULATION _____ (mi)
ONE (1) MILE OF SITE A. _____ NO OF PERSONS	TWO (2) MILES OF SITE B. _____ NO OF PERSONS	THREE (3) MILES OF SITE C. _____ NO OF PERSONS	
03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE _____		04 DISTANCE TO NEAREST OFF-SITE BUILDING _____ (mi)	
05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area) Site located southwest area of Chattanooga, TN.			



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE
(Less than 10^{-8} cm/sec) ☐ B. RELATIVELY IMPERMEABLE
($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE
($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE
(Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK

04 DEPTH OF CONTAMINATED SOIL ZONE

05 SOIL pH

_____(ft)

_____(ft)

06 NET PRECIPITATION

07 ONE YEAR 24 HOUR RAINFALL

08 SLOPE
SITE SLOPE

DIRECTION OF SITE SLOPE

TERRAIN AVERAGE SLOPE

_____(in)

_____(in)

_____%

_____%

09 FLOOD POTENTIAL

10

SITE IS IN _____ YEAR FLOODPLAIN

☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE

OTHER

A. _____ (mi)

B. _____ (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

_____(mi)

ENDANGERED SPECIES: _____

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL

RESIDENTIAL AREAS; NATIONAL/STATE PARKS,
FORESTS, OR WILDLIFE RESERVES

AGRICULTURAL LANDS
PRIME AG LAND AG LAND

A. _____ (mi)

B. _____ (mi)

C. _____ (mi)

D. _____ (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER	1	US-EPA Region IV lab, Athens, Ga	Completed
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	4	US-EPA Region IV lab, Athens, Ga	Completed
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE <input checked="" type="checkbox"/> GROUND <input type="checkbox"/> AERIAL	02 IN CUSTODY OF <u>Jim Repolic US-EPA</u> (Name of organization or individual)
03 MAPS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	04 LOCATION OF MAPS <u>Custody of Jim Repolic</u>

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis reports)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. CURRENT OWNER(S)

PARENT COMPANY (if applicable)

01 NAME			02 D+B NUMBER			08 NAME			09 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE			10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE		
05 CITY			06 STATE 07 ZIP CODE			12 CITY			13 STATE 14 ZIP CODE		
01 NAME			02 D+B NUMBER			08 NAME			09 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE			10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE		
05 CITY			06 STATE 07 ZIP CODE			12 CITY			13 STATE 14 ZIP CODE		
01 NAME			02 D+B NUMBER			08 NAME			09 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE			10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE		
05 CITY			06 STATE 07 ZIP CODE			12 CITY			13 STATE 14 ZIP CODE		
01 NAME			02 D+B NUMBER			08 NAME			09 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE			10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE		
05 CITY			06 STATE 07 ZIP CODE			12 CITY			13 STATE 14 ZIP CODE		

III. PREVIOUS OWNER(S) (List most recent first)

IV. REALTY OWNER(S) (if applicable; list most recent first)

01 NAME			02 D+B NUMBER			01 NAME			02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE			03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE		
05 CITY			06 STATE 07 ZIP CODE			05 CITY			06 STATE 07 ZIP CODE		
01 NAME			02 D+B NUMBER			01 NAME			02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE			03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE		
05 CITY			06 STATE 07 ZIP CODE			05 CITY			06 STATE 07 ZIP CODE		
01 NAME			02 D+B NUMBER			01 NAME			02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE			03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE		
05 CITY			06 STATE 07 ZIP CODE			05 CITY			06 STATE 07 ZIP CODE		

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION**

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. CURRENT OPERATOR (Provide if different from owner)

OPERATOR'S PARENT COMPANY (If applicable)

01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	14 CITY		15 STATE	16 ZIP CODE
08 YEARS OF OPERATION		09 NAME OF OWNER					

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	14 CITY		15 STATE	16 ZIP CODE
08 YEARS OF OPERATION		09 NAME OF OWNER DURING THIS PERIOD					

01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	14 CITY		15 STATE	16 ZIP CODE
08 YEARS OF OPERATION		09 NAME OF OWNER DURING THIS PERIOD					

01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	14 CITY		15 STATE	16 ZIP CODE
08 YEARS OF OPERATION		09 NAME OF OWNER DURING THIS PERIOD					

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ D. SPILLED MATERIAL REMOVED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ E. CONTAMINATED SOIL REMOVED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ F. WASTE REPACKAGED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ G. WASTE DISPOSED ELSEWHERE
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ H. ON SITE BURIAL
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ I. IN SITU CHEMICAL TREATMENT
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ J. IN SITU BIOLOGICAL TREATMENT
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ K. IN SITU PHYSICAL TREATMENT
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ L. ENCAPSULATION
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ M. EMERGENCY WASTE TREATMENT
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ N. CUTOFF WALLS
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ P. CUTOFF TRENCHES/SUMP
04 DESCRIPTION

02 DATE approx 1980

03 AGENCY Vetsicor

01 ☐ Q. SUBSURFACE CUTOFF WALL
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

*See/spring at Pine Woods Playground diverted to sewer system
which is treated by Moccasin Bend Wastewater Treatment Plant Chattanooga.*



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION
01 STATE 02 SITE NUMBER

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ S. CAPPING/COVERING
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ T. BULK TANKAGE REPAIRED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ U. GROUT CURTAIN CONSTRUCTED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ V. BOTTOM SEALED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ W. GAS CONTROL
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ X. FIRE CONTROL
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ Y. LEACHATE TREATMENT
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ Z. AREA EVACUATED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ 1. ACCESS TO SITE RESTRICTED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ 2. POPULATION RELOCATED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ 3. OTHER REMEDIAL ACTIVITIES
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis reports)



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION**

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports.)

SITE SCREENING - PRELIMINARY SITE SCORING

SI
6/1/84

FACILITY NAME Piney Woods Playground

LOCATION Chattanooga, Hamilton County, TN

PERSON(S) IN CHARGE George Kurz (615) 757-5180

OF FACILITY City of Chatt. Public Works Dept.

Chattanooga, TN 37402

NAME OF REVIEWER G.S. Caruthers

DATE 14 May 1987

COMMENTS

A neighborhood park and playground containing a spring
which has apparently been contaminated by migration
of hazardous waste material from a nearby disposal site.
Contamination has apparently spread to soil onsite. Not
a RCRA facility. No known use of surface or ground

water for domestic purposes.

PRELIMINARY SITE SCORING

SCORES: $S_m = 4.8$ ($S_{gw} = 4.5$ $S_{sw} = 6.9$)

$S_{dc} =$ Not Rated

SITE SCREENING - PRELIMINARY SITE SCORING

PRELIMINARY GROUNDWATER SCORE

1) OBSERVED RELEASE	0	(45)							45
2) ROUTE CHARACTERISTICS									
AQUIFER DEPTH (45-50 ft)	0	1	2	3				X2	4
NET PRECIPITATION (14.92 in)	0	1	2	3					2
PERMEABILITY (Karst present)	0	1	2	3					3
PHYSICAL STATE (Liquid)	0	1	2	3					3
								TOTAL ROUTE SCORE	
3) CONTAINMENT	0	1	2	3					
4) WASTE CHARACTERISTICS									
TOXICITY/PERSISTENCE (Lead)	0	3	6	9	12	15	(18)		18
WASTE QUANTITY (unknown - present by analysis)	0	(1)	2	3	4	5	6	7	8
									1
								TOTAL WASTE SCORE	19
5) TARGETS									
GROUNDWATER USE (Industrial process/ cooling)	0	(1)	2	3				X3	3
WELL DISTANCE/ POPULATION SERVED (No domestic use)	(0)	4	6	8	10	12	16	18	
	20	24	30	32	35	40			0
								TOTAL TARGETS SCORE	3

OBSERVED RELEASE: MULTIPLY (1) X (4) X (5)

NO OBSERVED RELEASE: MULTIPLY (2) X (3) X (4) X (5)

2,565

DIVIDE BY 57330 AND MULTIPLY BY 100

S_{gw}

4.5

SITE SCREENING - PRELIMINARY SITE SCORING

PRELIMINARY SURFACE WATER SCORE

1) OBSERVED RELEASE	(0)	45		<u>0</u>
<hr/>				
2) ROUTE CHARACTERISTICS				
TERRAIN/FACILITY SLOPE (3 - 5%)	0	(1)	2 3	<u>1</u>
1yr. 24 hr. RAINFALL (2.1 in)	0	1	2 (3)	<u>3</u>
SURFACE WATER DISTANCE (~ 400 ft.)	0	1	2 (3)	<u>6</u>
			X2	
PHYSICAL STATE (Liquid)	0	1	2 (3)	<u>3</u>
TOTAL ROUTE SCORE				<u>17</u>
<hr/>				
3) CONTAINMENT	0	1	2 (3)	<u>3</u>
<hr/>				
4) WASTE CHARACTERISTICS				
TOXICITY/ PERSISTENCE (Lead)	0	3	6 9 12 15 (18)	<u>18</u>
WASTE QUANTITY (unknown - present by analysis)	0	(1)	2 3 4 5 6 7 8	<u>1</u>
TOTAL WASTE SCORE				<u>19</u>
<hr/>				
5) TARGETS				
SURFACE WATER USE (fishing, etc)	0	1	(2) 3	<u>6</u>
			X3	
SENSITIVE ENVIRON- MENT DISTANCE	(0)	1	2 3	<u>0</u>
			X2	
POPULATION SERVED/ WATER INTAKE DISTANCE	(0)	4	6 8 10 12 16 18 20 24 30 32 35 40	<u>0</u>
TOTAL TARGETS SCORE				<u>6</u>
<hr/>				

OBSERVED RELEASE: MULTIPLY (1) X (4) X (5)

NO OBSERVED RELEASE: MULTIPLY (2) X (3) X (4) X (5)

4,446

DIVIDE BY 64350 AND MULTIPLY BY 100

S_{SW}

6.9

SITE SCREENING - PRELIMINARY SITE SCORING

	S	S ²
GROUNDWATER ROUTE SCORE (S _{gw})	<u>4.5</u>	<u>20.25</u>
SURFACE WATER ROUTE SCORE (S _{sw})	<u>6.9</u>	<u>47.61</u>
$\sqrt{S_{gw}^2 + S_{sw}^2} / 1.73 = S_M$		<u>4.76</u>

Site No. TND 100842400

Reference No. 1

OFFICE CORRESPONDENCE

DATE: JANUARY 25, 1984

TO: FILES

FROM: MICHAEL J. HIGGS & MARGARET E. DEW

SUBJECT: Field Notes of January 25, 1984, cursory inspection
of the Chattanooga Creek Basin

FROM	TO	DATE

SITE #3
Piney Woods Spring/Ball Field

This is a contaminate spring reported originally by Velsicol adjacent to a ball park and residential area. Property is owned by the Piney Woods Homeowners Assoc. and maintained by the city. The spring arises in a rock outcropping and at one time flowed through a swampy area adjacent to the ball field. At one time the spring discharged black, slimy, foul smelling liquid which was similar analytically to leachate, ect., from Residue Hill. Velsicol, however, denies that it is connected with Residue Hill. Also, the liquid contained high fecal coliform counts. Velsicol financed work at this site which included capping the spring and installation of a French drain to collect the discharge and transported to a nearby sanitary sewer line.

This site is included in the Residue Hill monitoring program. The spring discharges cleared up visually after the completion of the Residue Hill remedial action.

EPA has collected soil samples from the adjacent ball park - results will be forthcoming.

PERSONNEL IN ATTENDANCE:

Michael J. Higgs	-	DSWM
Maragret E. Dew	-	DSWM
Ken Davis	-	DSWM
Barry Brawley	-	DSWM
Skip Wrightson	-	DSWM
Jim Childress	-	DSWM
Phil Stewart	-	DWM
Joe Hartman	-	DWM

[illegible]

Site No. TND 100842400

Reference No. 2



Site #1 & 3

RAY BLANTON
GOVERNOR

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
NASHVILLE 37219

Eugene W. Fowinzie, M.D., M.P.H.
Commissioner

January 2, 1979

Subject: Preliminary geologic evaluation of a proposed demolition waste disposal site to serve the City of Chattanooga (visited August 4, 1978)

Site: Approximately 60+ acres of mostly cleared land owned by Southern Foundry Supply Inc. of Chattanooga.

Location: Fort Ogelthorpe Quadrangle (106-NE); located approximately 1.0 mile southeast of St. Elmo and bound on the east by Wilson Road and on the south by the Tennessee-Georgia line (see accompanying topographic map).

Topography: The proposed site is in an area of predominantly low relief and gentle slopes along the floodplain of Chattanooga Creek (see accompanying topographic map). The site slopes basically to the south towards Chattanooga Creek and rises gently to the east and north. Several large and small ponds cover most of the southern portion of the proposed site (see accompanying topographic map). Slopes on the vast majority of the site are less than 5 percent with total relief being approximately 25 + feet.

Bedrock: Lithology: According to the East-Central Sheet of the Geologic Map of Tennessee, 1966, by Hardeman, et. al., the proposed site is underlain by the Chickamauga Limestone of Ordovician Age (see accompanying geologic map). The Chickamauga formation in this area consists basically of light-gray to gray, fine-to coarse-grained; thin- to thick-bedded limestone. Minor amounts of dark blocky chert are found throughout the formation. No bedrock outcrops were observed on the proposed site at the time of inspection.

Structure: The proposed site is situated in a folded and faulted region (see accompanying geologic map). A major thrust fault is present approximately 1500 feet east of the proposed site. This feature strikes approximately north-south and dips to the southeast at about 45 degrees. Bedrock underlying the proposed site is believed to dip to the east-southeast at about 25-35 degrees. The bedrock is most likely fractured to some extent as a result of the past folding and faulting in the area.

Weathering: According to the Soil Survey of Hamilton County, 1947, by Roberts, et. al., the proposed site is underlain by Atkins, Philo, Pope, and Talbott type soils (see accompanying soils map). The Atkins soils which underlie the majority of the proposed site are poorly drained, acid soils of the first bottoms. The soils consist essentially of an upper 8 inches of light gray, friable silt loam that grades into a gray, very compact, silty clay loam. The Atkins soils have slow internal and external drainage. The Philo and Pope type soils at the site are also acid soils of the first bottoms and are found in the central portion of the proposed site. These soils consists basically of an upper 10 to 12 inches of grayish-brown, loose, fine

sandy loam that grades into a fine sandy loam to very fine sandy clay. The Philo soils have slow internal drainage while the Pope soils have moderate internal drainage. The Talbott soils are found in the northern extremity of the proposed site on slopes ranging from 8 to 15 percent. These soils consist of an upper 4 to 7 inches of grayish-brown silty clay loam that is underlain by a yellowishred, tight, plastic, silty clay. Internal drainage for these soils is moderately slow with external drainage being good. Depth to bedrock for areas underlain by Talbott soils is about 5 feet.

Hydrology: Surface: Surface runoff from the proposed site is primarily slow as a result of the dominantly gentle slopes. Runoff from the site drains basically to the south and into either the several ponds located on the site or into Chattanooga Creek which flows along the southern extremity of the proposed site (see accompanying topographic map). The proposed site is located in the floodplain of Chattanooga Creek and according to Floods on Tennessee River, Chattanooga and Dry Creeks and Stringers Branch - Vicinity of Chattanooga, Tennessee, 1959, by the Tennessee Valley Authority, the entire proposed site would be covered by the maximum probable flood, regulated (see accompanying flood map).

Subsurface: Specific data on the ground-water conditions existing in the vicinity of the proposed site is not available at this time. The occurrence and movement of ground water in the underlying bedrock will be controlled by secondary openings such as joints, fractures, and solutional openings. The elevation of water in Chattanooga Creek, approximately the 645 foot elevation, should roughly correspond to the ground-water level in the area. In addition, the water level in the ponds at the site, approximately 646 foot to 649 foot elevations, should roughly correlate with the elevation of the water table at the site. The direction of ground-water flow at the site should be towards Chattanooga Creek, a natural discharge point.

Recommendations: Based upon the above information, this site is determined to be unsuitable for use as a demolition waste disposal site. The primary factors that render the site unsuitable include:

1. Presence of several large ponds across the proposed site, especially in the southern portion of the site.
2. The proposed site is subject to periodic flooding with the entire site lying below the maximum probable flood level as determined by the Tennessee Valley Authority (1959).
3. Potential for shallow water-table conditions existing at the site due to its proximity to Chattanooga Creek and dominant low relief.

John M. Hines
Geologist

km 2/30, 2/01

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

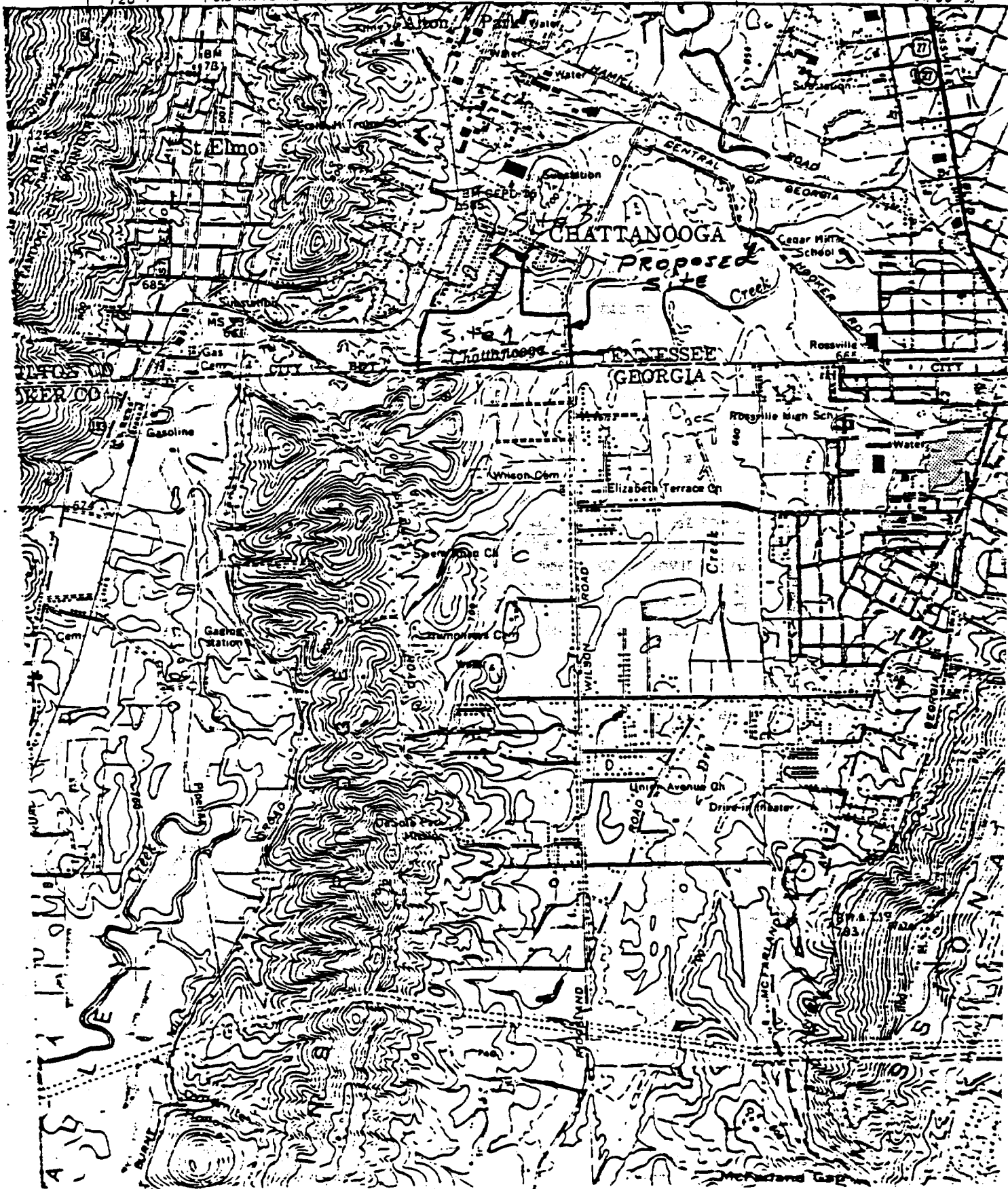
CHATTANOOGA 3.8 MI.

0.5 MI. TO TENNESSEE SE

3954 III SE
(CHATTANOOGA 105-SE)

1955

CHATTANOOGA
17°30'N



Site No. TND 100842400

Reference No. 3



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30308

JUL 7 1980

JUN 27 1980


Mr. Philip L. Stewart
Tennessee Dept. of Public Health
Division of Water Quality
Southeast Regional Office
2501 Milne Street
Chattanooga, Tennessee 37406

Re: Piney Woods spring water quality data

Dear Mr. Stewart:

Attached is the Velsicol Chemical Corp. water quality data on the Piney Woods spring south of "Residue Hill" which we discussed the other day.

Sincerely yours,


Richard D. Green
Environmental Scientist
KY/TN Compliance Group

Attachment

cc: James R. Spicer
Tenn. Division of Solid Waste Management

Handwritten notes and stamps:
JUL 7 1980
JCM
LP
HOLD
PUS
A2F

Handwritten notes:
File
Velsicol Chemical Corp.
Chattanooga

Handwritten notes and stamps:
C.P. HARRIS: 1/10/80 (2)
General
1980
C.P. T.K.C. (2)
C.P. L. 27.9.80 (1980)
-TVA

VELSICOL CHEMICAL CORPORATION

341 EAST OHIO STREET • CHICAGO, ILLINOIS 60611 • 312-670-4500

April 11, 1980

Mr. Dick Green
U.S. EPA, Region IV
345 Courtland Street
Atlanta GA 30308

Dear Dick:

Pursuant to the Agency's request for available analytical data on the Piney Woods Seep, I am enclosing a memo prepared by Dr. Dan Marks of Velsicol's Memphis Environmental Center and the results of an analysis prepared by Woodson-Tenent.

Sincerely,

VELSICOL CHEMICAL CORPORATION

David

David B. Graham
Deputy General Counsel

DBG:svh:ed

Enclosure

OFFICE CORRESPONDENCE

March 21, 1980		MAIL NO.	MAIL
TO	John M. Rademacher	4620	David Graham ✓ 4660
			Ron Baumer 0703
			Tom McMahon (Sidley & Austin)
FROM	D. R. Marks	MAIL NO.	
		0708	
SUBJECT	Critique of Available Analytical Data - Piney Woods Seep		

DRAFT

The Woodson-Tenent analyses were done solely by GC with the only means of compound identification being comparison with retention time of known compounds. This is only presumptive at best unless considerable information is at hand concerning the actual composition and source of the sample. Our experience with Woodson-Tenent's analyses in the past have been questionable. For these reasons I believe that any compound reported at less than 5 ppb is suspicious and should be disregarded until verified by further more definitive work. Using the 5 ppb cutoff, the revised Woodson-Tenent data are shown in Table I. In Tables II and III are shown our data on two samples taken subsequent to the Woodson-Tenent sample and analyzed by GC/MS.

Table III, which was reported on 11/30/79, gives a breakdown of the probable sources of the contaminants as found by us using the GC/MS. In the case of all items not specifically listed as tentatively identified, the identification is unequivocal. Comparison with Table I shows that many of these compounds (which were found in two separate samples at essentially the same levels) were not identified by Woodson-Tenent at all and many of the major compounds reported by Woodson-Tenent were not found by GC/MS. This only leads to further speculation as to the validity of the Woodson-Tenent data. In fact, one of the materials identified definitely in our two samples is Dowtherm A in significant amounts and this was completely missed by Woodson-Tenent. Of course, I do not know where the samples were taken so I cannot say definitely that they do indeed represent the same seep.

The history of the Chattanooga plant is known to have included coke oven operations, chlorination of benzene, and chlorination of toluene. All of the compounds we found in the seep samples are consistent with this past history. The Dowtherm A is a common high temperature heat transfer medium and could have been used by Velsicol, Tennessee Products, or some other nearby operation. The phthalates found are rather ubiquitous environmental contaminants and could arise from almost any source including possibly the coke plant wastes or even sample contact with plastics containing these plasticizers.

The metals analyses are all fairly low with the exception of antimony and this may come from coke or even soil contact.

The rather high fecal coliform level of 1400/100 ml indicates contamination with domestic sewage, perhaps septic tank fields.

On Tables II and III the extremely high ethylbenzene in the 7/5 sample and the complete absence in the sample of 8/2 indicates to me that an improperly

cleaned solvent bottle was used to take the sample of 7/5. With the consistency of the two samples otherwise, it is very unlikely that it would disappear from the second sample completely. Here again, Woodson-Tenent either used a contaminated bottle or made a mis-identification in all probability. It is possible for ethylbenzene to be a coke oven by-product but this would not explain its wide fluctuation or disappearance.

TABLE 1

ANALYSIS PINEY WOODS SEEP BY WOODSON-TENENT

	Woodson-Tenent	ppb *
Tri Chloroethylene	50	260
benzene	180	25
toluene	160	14,300
Chlorobenzene	1500	
Ethylbenzene	180	1400
2,4-Dinitrophenol	116	
Pentachlorophenol	36	1,010
4-Nitrophenol	30	
Alpha Endosulfan	845	
Delta BHC	5	
N-Nitrosodimethylaniline	4260	
1,4-dichlorobenzene	582	
2,4-dinitrotoluene	347	
2,6-dinitrotoluene	28	
Diethyl phthalate	27	
Phenanthrene	357	
Di-n-butyl phthalate	118	34
Pyrene	386	
Butyl benzyl phthalate	298	
3,3-dichlorobenzidine	338	
Antimony	270	
Beryllium	10	
Cadmium	4	
Chromium	16	50
Copper	8	100
Lead	85	50
Mercury	29	2
Nickel	15	20
Selenium	7	
Silver	15	50
Thallium	71	
Zinc	2	50

* Only values over 5 ppb are included since the accuracy of both quantitation and identification are believed to be questionable below 5 ppb, when analyzed by GC only.

TABLE II

Sample Source: Seepage from Chattanooga Plant Area

Date Sampled 7/5/79

Date Analyzed 7/9/79 - 7/27/79

Date Reported 7/30/79

<u>Component Identity</u>		<u>ppm</u>	
1.	Methyl Ethyl Ketone	32.00	0.75
2.	Toluene	.016	14.3
3.	Monochlorobenzene	.036	
4.	Ethylbenzene	0.14	
5.	Monochlorotoluene	0.37	
6.	p-dichlorobenzene	0.41	
7.	o-dichlorobenzene	0.74	
8.	Biphenyl	0.10	
9.	Diphenyl ether	0.15	
10.	4-Aminobiphenyl (Tentative Identification)	(0.05)*	
11.	Unidentified aromatic	(0.03)*	
12.	Dibenzyl ether (Tentative Identification)	(0.25)**	
13.	High MW Aromatic (Unidentified)	(0.01)**	
14.	n-butyl phthalate	0.025	0.03
15.	phenanthrene	0.003	
16.	acenaphthene	0.021	
TOTAL		2.36	

* Estimated from biphenyl standard

** Estimated from diphenyl ether standard

Note: Ratio of biphenyl to diphenyl ether indicates these are present as Dowtherm A.

Metals Analysis

Fe	11 ppm	Hg	7.5 ppm
Mn	7.2 ppm	Zn	0.018 ppm
Cr	0.1 ppm	Pb	0.5 ppm

Tol Limit
11-13-84

.002 ppm

.05 ppm

Miscellaneous

Fecal Coliform

1400/100 ml

TABLE III

Sample Source: Seepage/Piney Woods (Resample)

Date Sampled 8/2/79

Date Analyzed 8/7/79

Date Reported 11/30/79

Probable
Source

1. Bacteriological Fecal Coliform

N.A.

Domestic Sewage

2. Component Identity

PPM

1. Fe

N.A.

2. Mn

N.A.

3. Cr

N.A.

4. Hg

N.A.

5. Zn

N.A.

6. Pb

N.A.

7. Methyl Ethyl Ketone

N.D.

Sample Bottle

- 8. Toluene

1.39

C, V

- 9. Monochlorobenzene

0.34

T

- 10. Ethylbenzene

0.46

C

- 11. Monochlorotoluene

1.39

V

- 12. p-Dichlorobenzene

0.37

T

- 13. o-Dichlorobenzene

0.29

T

- 14. Biphenyl

0.06*)

T, V

15. Diphenyl Ether

0.16*)

16. 4-Aminobiphenyl (Tentative Identification)

N.A.

C

17. Unidentified Aromatic

N.A.

C

18. Dibenzyl ether (Tentative Identification)

N.A.

C

19. High MW Aromatic (Unidentified)

N.A.

C

20. n-butyl phthalate

N.A.

C

21. phenanthrene

N.A.

C

22. acenaphthene

N.A.

C

Additional Components not seen in sample of 7/5/79:

- 23. hexachloroethane

0.14

T, V

- 24. trichlorobenzene

0.19

T

25. tetrachlorocyclopentene

0.10

U

26. octachlorocyclopentene

0.54

U

TOTAL

5.43

N.A. - Not Analyzed

N.D. - Not Detected

C - Coke Plant

T - Tenn. Products Operations

V - Velsicol Operations

U - Unknown - These compounds not known to have ever been present or produced at Chattanooga plant.

* Note: Ratio of biphenyl to diphenyl ether indicates these are present as Dow-therm A.

1) Analysis prepared by VCC Environmental Laboratory - Memphis, Tennessee

Site No. TND 100842400

Reference No. 4



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30308

MAY 19 1980

REF: 4WE

Mr. John M. Rademacher, Vice President
Environmental, Health, and Regulatory Affairs
Velsicol Chemical Corporation
341 East Ohio Street
Chicago, Illinois 60611

Re: Revised "Residue Hill" groundwater monitoring plan

Dear Mr. Rademacher:

This Agency has received a proposal from Velsicol to delete the groundwater quality monitoring effort from the overall "Residue Hill" improvement program. That is, the agreed upon data from the six groundwater quality monitoring wells and the Piney Woods spring would be submitted separately to this Agency and the Tennessee Department of Public Health.

Separate submittal of the spring and groundwater quality well data is acceptable to this Agency. Further, it is our understanding that this arrangement is also acceptable to the Tennessee Department of Public Health, Divisions of Water Quality and Solid Waste. However, please be advised that this agreement is not to be interpreted as reflecting any change in this Agency's position that groundwater quality monitoring is an integral portion of the overall environmental monitoring program at "Residue Hill." We will expect the spring and groundwater quality well data to be submitted to EPA and the Tennessee Department of Public Health for the agreed upon parameters and stations at the agreed upon intervals.

Regarding the Piney Woods spring, we cannot agree with Velsicol's statements of April 11 that "a review of the geology indicates the groundwater flow from the site does not intercept the Piney Woods spring" and that "it has no connection with the disposal site." These statements are not consistent with the conclusions of the October, 1979, Law Engineering Report of Geotechnical Investigation. For example, the Law Report states that the "predominant flow from the residue disposal area is probably along strike, towards the south" and "there is likely flow through soil and fractures towards the east but with less volume than flow towards the south." In addition, the spring data which Velsicol recently submitted to this Agency for samples taken in August, 1979, is annotated to the effect that several chemicals which were identified had Tennessee Products and/or Velsicol "operations" as their "probable source." Further, the memorandum from Dr. Marks which accompanies this data states that "the history of the Chattanooga plant is known to have included coke oven operations, chlorination of benzene, and chlorination of toluene. All of the compounds we found in the seep samples are consistent with this past history."

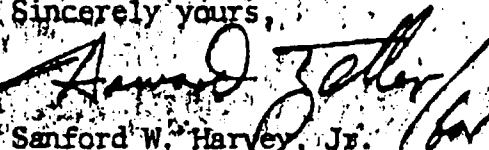
520
JGM
ADL → PLS
WFS
KRM
KIM
AEE
Velsicol Chemical
ILW 1980
(H2211700)
CC: TVA-18
CO: 112M110N
CMT 12/19/80

apc
bete

We are completing our review of the Engineering Report for site improvements and have been in contact with the Tennessee Divisions of Water Quality and Solid Waste. We expect to forward a consolidated review during the week of May 19.

If you have any questions regarding this letter, please contact Richard Green or Andrew Kromis of my Compliance Section staff at (404) 881-3973.

Sincerely yours,


Sanford W. Harvey, Jr.
Director
Enforcement Division

cc: A. Ronald Baumer
Tom Tiesler
Jack McCormick
Terry K. Cothron
David Keating
Quentin C. Pair
Thomas McMahon
James W. Gentry
Dan Phelps
Frank A. Bowers

7. FM 11/30
LS 11/28
P 11/30
AZF 11/28
FP 11/28
GCE
DH 11/30
CPW
EOS

SUBJECT: EPA Soil Sampling at Piney Woods Ball Field,
Chattanooga

FROM	TO	DATE
<p><i>Wren County, 1983</i></p> <p><i>File: [unclear]</i></p> <p><i>Company [unclear]</i></p> <p><i>(Hawthorne)</i></p> <p><i>Co. [unclear]</i></p> <p><i>Hawthorne</i></p>		

On November 14, 1983, Dick Green, EPA, Atlanta, called to advise that the EPA sampling crew would be at the Piney Woods Ball Field on November 21, 1983, to take the soil samples. He had already contacted Dan Phelps with Velsicol Chemical Company and Velsicol plans to have its people present with the EPA contractor to split samples with them. Dick plans to meet Dan Phelps around noon for lunch and the sampling will start immediately after lunch.

Dick wanted to know if the State wished to have anyone present for this sampling. I told him that I did not believe we would need to participate in the sampling as both the Water Management Division and the Solid Waste Management Division had already concurred on the location of the samples. I told him, however, that I felt they should inform the City of Chattanooga of the sampling, and he said that he would immediately call George Kurz to advise him.

JRM/agk

cc: Solid Waste Management Division, c/o Steve Baxter

[illegible]

Site No. TND 100842400

Reference No. 5

3

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
SOUTHEAST REGIONAL OFFICE
2501 MILNE STREET
CHATTANOOGA, TENNESSEE 37406

July 3, 1980

Mr. W. Daniel Phelps, P.E.
Velsicol Chemical Corporation
4902 Central Avenue
Chattanooga, Tennessee 37410

Re: Velsicol, Chattanooga,
Wastewater Control Projects

Dear Mr. Phelps:

This letter is intended to update the dialogue between your Company and this Division regarding water pollution control work recently completed at or near your facility. We would appreciate a response from you defining your Company's status or plans for dealing with the areas of concern discussed below:

Wastewater Control Project No. 75-046

One of the final construction items for this project was the placement of the concrete gutter and curb along the road paralleling the plant's northern boundary. The purpose of the work was to prevent any discharge of contaminated surface runoff along this section of the plant perimeter. We inspected the work on April 25, 1980 and found it acceptable except for a few points that runoff was leaking through the curbing. This problem exists wherever the expansion joint filler does not extend to the top of the curb and an approximate 1/2" inch gap results. As we discussed, it is recommended that these gaps be cleaned and filled with a suitable sealant.

BP Plant Water Meter Pit

On April 25 and 30, 1980, we inspected the work being done in connection with improving the Tennessee-American Water Company water meter installation at the BP Plant. The water meters, which had been located in a 4' X 8' below-grade vault, were being raised above ground level to remove them from contact with contaminated water which had been collecting from infiltration or runoff in the vault. Water company employees had complained about encountering irritating chemical fumes whenever the meters were read.

FILED
JUL 10 1980
CHATTANOOGA
RANK 3/22
RBM 1/11
Velsicol Chemical Corp
JUL 1980 (Hamilton)
Hamilton County
Complaints 1980
American
WATER
Hamilton

Mr. W. Daniel Phelps, P.E.
July 2, 1980
Page Two

While raising the meters out of the pit appeared to be the solution to the problem, the water company also expressed concern over the possibility of chemicals in the ground around their water main. Test pits along the main were opened and samples were collected of the ground water that seeped in for analysis at the Velsicol Memphis Lab. Possible leaks from nearby process sewers were to be investigated and corrected if found to be causing the problem. The test pit nearest the meters was to be pumped regularly to see if the infiltration to the meter pit could be "dried-up". Also, plans were discussed for the installation of a new reduced pressure backflow preventer to be installed on the main between Velsicol and the water company's Central Avenue lines. However, problems regarding shared service with Chattanooga Coke and Chemical Plant and fire protection code requirements had to be resolved first. We need to be advised of the status regarding these problems.

Piney Woods Spring

On June 12, 1980, while attending a program sponsored by the Tennessee Environmental Council, Jack McCormick learned that work had been done to collect the contaminated outflow from this spring and drain it to the City Sanitary Sewer. We learned, by checking with the City, that Velsicol had provided the materials and the City had provided the labor and construction equipment for this project.

Our inspection at the spring on June 13, 1980 revealed that the work consisted of an earthen dam downhill of the contaminated outflow point. Limestone bedding in the pooled water supports a precast concrete catch basin and cover and a 8" PVC line connecting the catch basin to a City sewer manhole approximately three hundred feet away.

While we agree that it is preferable to have this polluted water, possibly contaminated by wastes in Residue Hill, draining into the City sewer rather than through the adjacent neighborhood park, we feel that the work has not been entirely successful in preventing potential contact by the public with this water. The invert of the 8" PVC pipe is such that the water collected behind the dam will not completely drain. The resulting pool of water apparently leaks through or around the end of the dam and still contaminates the water downstream of the dam.

We assume that the main purpose of the catch basin and sewer connection was to remove this health hazard from public contact. However, we must go on record saying that we do not believe that the present work has accomplished this goal. Therefore, as a minimum, we recommend that the dam be reworked to make it impervious to leaks which may mean a relocation and/or "keying" into the adjacent rock outcroppings. Also, it is recommended that additional

Mr. W. Daniel Phelps, P.E.
July 3, 1980
Page Three

limestone fill be placed in the pooled water so that the water's surface is below the top of the fill.

RD
78145
As stated earlier, in order to resolve the questions discussed in this letter, we are requesting that you provide us with information on how and when Velsicol plans to correct these problems. If they have already been corrected, please tell us how the remedy was accomplished. We are also requesting that any plans for improving the Piney Woods Spring collection system be provided to us for our comments. Your cooperation in answering this letter expeditiously will be appreciated, and, in the meantime, if you have any questions, please contact me.

Sincerely,

Philip L. Stewart

Philip L. Stewart
Environmental Engineer
Division of Water Quality Control

PLS/dfp

cc: Division of Water Quality Control, Nashville, c/o Terry Cothron and
Bob O'Dette
cc: City of Chattanooga, c/o George Kurz
cc: Environmental Protection Agency, Atlanta, c/o Richard Greene
cc: Chattanooga-Hamilton County Health Department
cc: Southeast Regional Health Office

Site No. TND 100842400

Reference No. 6

OFFICE CORRESPONDENCE

SUBJECT: Piney Woods Spring, Chattanooga

George Kurz was called on 7/9/80 and told of the above approvals and request. George also said that Velsicol had committed to the proposed work and that the City was proceeding with the project and had already started stockpiling fill dirt at the site.

cc: DMQC, Nashville, c/o Terry Cothron
cc: DSM, Nashville, c/o Ruth Yates

[illegible]

Site No. TND 100842400

Reference No. 7

OFFICE CORRESPONDENCE

JUNE 21/12
 OGW 7/18
 LH 8/11
 PLY 8/11
 OGM 2/19
 IOH 2/16
 JMC 5/15
 LFI 9/15
 RWZ 9/15
 TPA 12/13

FROM	TO	DATE
	File	
	Hamilton	1980
	Comp	1980
	ca: [illegible]	
	Chm. [illegible]	
	[illegible]	

On 7/11/80, Bunky Wright called me and reported that he planned to start work on this project that morning if he could locate a backhoe operator. He also said that, after inspecting the project with "Robert" (apparently his head sewer repairman), that they now plan to build a french drain by digging a ditch with a backhoe out from the catch basin along the toe of the limestone ledge. The ditch will be sloped to the catch basin and filled with 3 to 4 inch rock. They believe that this method will drain the pooled water and will allow the area to be backfilled with dirt which has already been stockpiled at the site. Bunky said that construction of the "dam", as discussed earlier with Jack McCormick, would still be necessary with their current plan. He also said that the trees growing in the spring would be removed before backfilling. Bunky plans to call Jack on 7/14 or 7/15 when the work is underway.

PLS/grr

cc: DWQC, Nashville, c/o T.K. Cothron

[illegible]

Site No. TND 100842400

Reference No. 8

OFFICE CORRESPONDENCE

SUBJECT: Piney Woods Playground Soil Contamination Sampling Project

P 8/30
 2: 8/31
 FROM TO DATE
 JFP 9/19
 Hamilton Co.
 Internal Correspondence
 pling Project 1983

I told Dick Green that I agreed with his proposal and felt that it was a reasonable approach to screen the area & monitor for toxics that might be present from the Piney Woods Spring discharge. Dick said that if any of

[illegible]

Office Memorandum
August 23, 1983
Page Two

the samples were to show dangerous concentrations of the contaminants monitored for, additional sampling in the playground could be justified and would be done as a follow-up project.

PLS/dfp

cc: Ken Bunting, Nashville

Sample PW-1(0) was a surface sediment/soil sample collected from the seep zone. Fifteen metals and four organic compounds were detected in this sample. Concentrations for the metals ranged from 23 mg/kg for chromium to 42,000 mg/kg for iron. Arsenic and mercury were not detected in this sample. The concentration of barium detected in sample PW-1(0) was elevated (1,700 mg/kg) compared to the concentrations of barium (98 mg/kg to 180 mg/kg) detected in the other samples. The two organic compounds positively identified and quantified in sample PW-1(0) were chlorobenzene (360 ug/kg) and xylene (62 ug/kg). An unidentified terpene was detected at an estimated concentration of 200 ug/kg. Chlorotoluene was detected at an estimated concentration of 500 ug/kg.

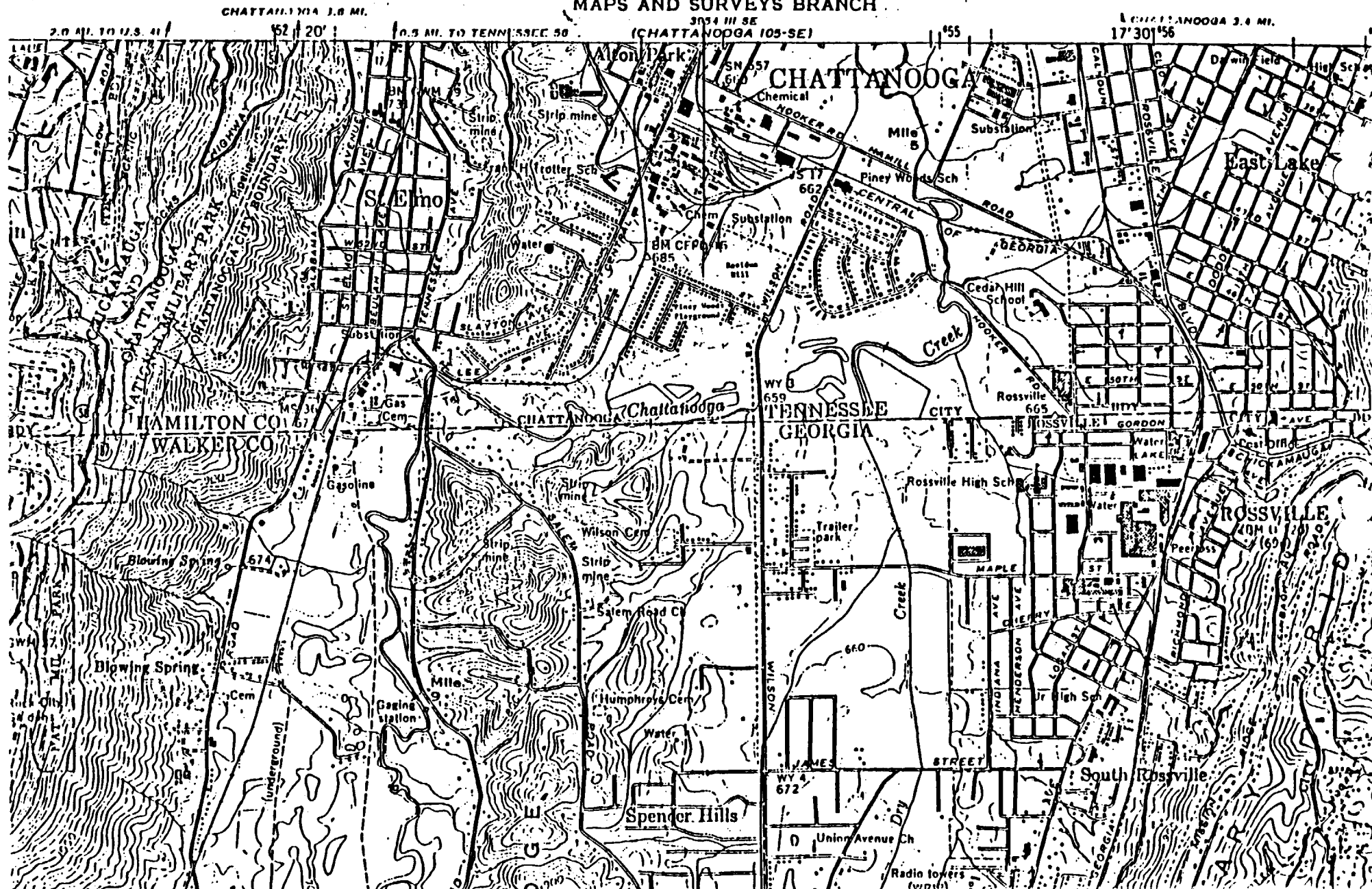
STUDY METHODOLOGY

All sampling and sample handling was conducted in accordance with the Water Surveillance Branch Standard Operating Procedures and Quality Assurance Manual (Draft, August 1980). Laboratory analyses were performed by the US-EPA Region IV and contract laboratories in accordance with the Analytical Support Branch Operations and Quality Control Manual (April 1982) or as specified by the existing US-EPA standard procedures and protocols for the contract analytical laboratory program.

REFERENCES

1. Hazardous Waste Site Investigation, Velsicol Residue Hill - Piney Woods Playground, Chattanooga, Tennessee, June 26, 1980; U. S. Environmental Protection Agency, Region IV, Surveillance and Analysis Division, January 16, 1981.
2. Quality Assurance Overview, Residue Hill Hazardous Waste Site Investigation, Velsicol Chemical Corporation, Chattanooga, Tennessee, RCRA Project Number 82-127, December 3, 1982; U. S. Environmental Protection Agency, Region IV, Environmental Services Division, December 6, 1982.
3. Quality Assurance Overview, Residue Hill Hazardous Waste Site Investigation, Velsicol Chemical Corporation, Chattanooga, Tennessee, RCRA Project Number 82-127A; U. S. Environmental Protection Agency, Region IV, Environmental Services Division, May 17, 1983.
4. Carey, Ann E., et al. "Heavy Metal Concentrations in Soils of Five United States Cities, 1972 Urban Soils Monitoring Program." Pesticides Monitoring Journal, Vol. 13, No. 4, March 1980, 150-154.
5. Carey, Ann E., et al. "Monitoring Pesticides in Agricultural and Urban Soils of the United States." Pesticides Monitoring Journal, Vol. 13, No. 1, June 1979, 23-27.
6. November 6, 1980, US-EPA memo from Barrett and Carey to Harvey; reference "Metals in Soils - A Brief Summary."
7. Carey, Ann., et al. "Pesticides Residue Concentrations in Soils of Five United States Cities, 1971 Urban Soils Monitoring Program." Pesticides Monitoring Journal, Vol. 13, No. 1, June 1979, 17-22.
8. Water Surveillance Branch Standard Operating Procedures and Quality Assurance Manual (Draft); U. S. Environmental Protection Agency, Region IV, Surveillance and Analysis Division; August 29, 1980.

Figure 1
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH



Sampling Location
Piney Woods Playground
Chattanooga, Tennessee

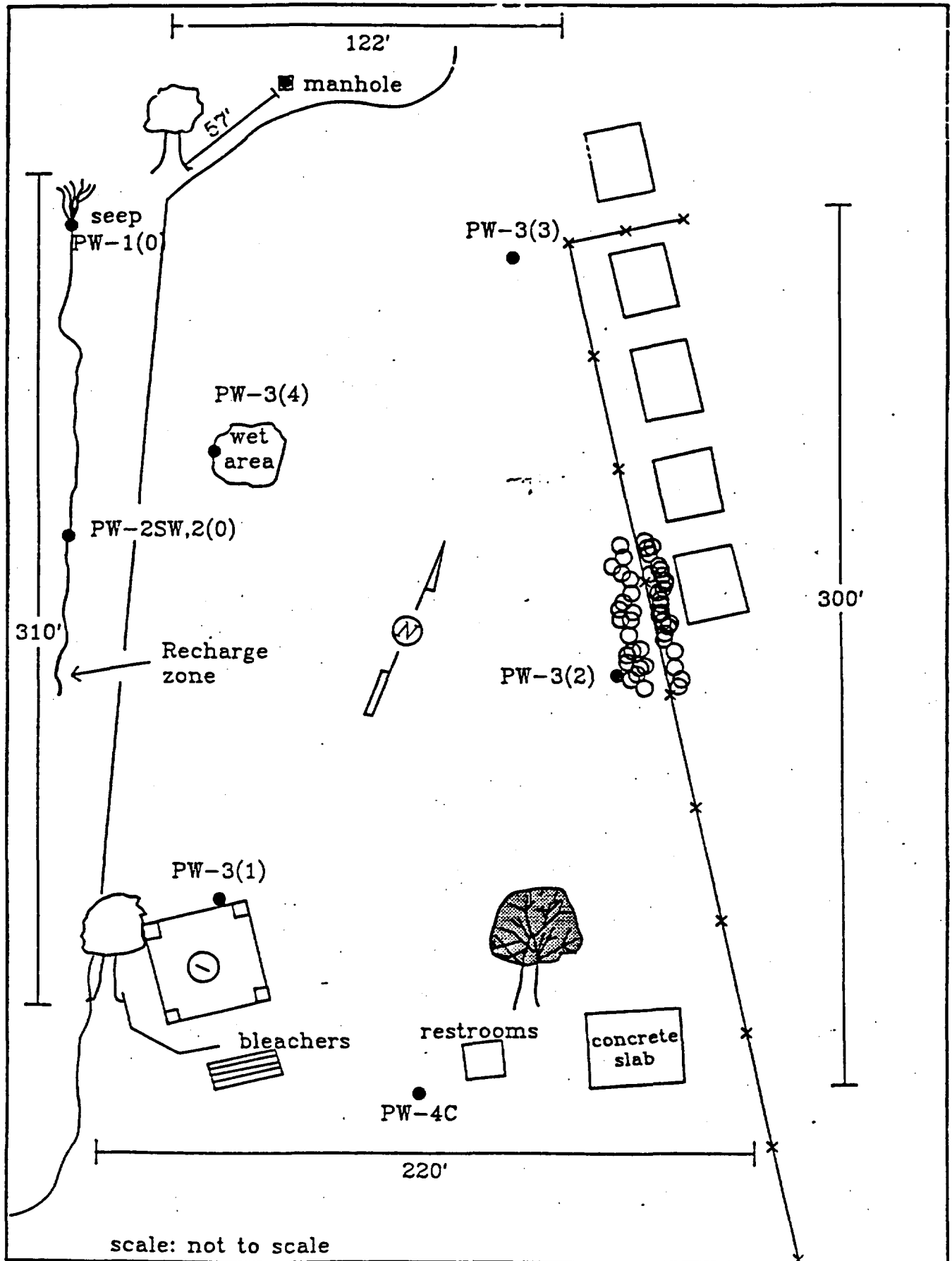


TABLE 1
SAMPLING LOCATION DESCRIPTION
PINEY WOODS PLAYGROUND
CHATTANOOGA, TENNESSEE

<u>Station</u>	<u>Date</u>	<u>Time</u>	<u>Description</u>
PW-4C	11-21-83	1230	Control soil sample collected 24-feet south of playground restrooms (Figure 2). Sample consisted of soil material from ground surface to approximately 3 inches below ground surface (see attached photographs).
PW-3	11-21-83	1245-1310	<p>Composite soil sample from the playground, collected from 4 stations:</p> <p>PW-3(1) - collected near 2nd base, approximately 80 feet north of the back-stop.</p> <p>PW-3(2) - collected approximately 80 feet north of the concrete slab and 20 feet from fence.</p> <p>PW-3(3) - collected approximately 220 feet north of concrete slab.</p> <p>PW-3(4) - collected from wet area located approximately 100 feet south of seep zone, and 30 feet from playground boundary.</p> <p>Sample from each station collected from surface to approximately 3 inches below ground surface and composited into a single sample prior to containerizing.</p>
PW-2SW	11-21-83	1400	Surface water (flowing) from seep drainage basin collected approximately 100 feet south of seep zone.
PW-2(0)	11-21-83	1425	Sediment from the seep drainage basin bed (bottom) to a depth of approximately 6 inches. Collected from same location as sample PW-2SW; approximately 100 feet south of seep zone.
PW-1(0)	11-21-83	1520	Composite sediment/soil sample from seep zone, approximately 60 feet south of the French drain system (manhole).

03/21/84

TABLE 2
PINEY WOODS PLAYGROUND
ANALYTICAL DATA SUMMARY
SOIL/SEDIMENT SAMPLES
CHATTSNOGA, TENNESSEE

11-13-84

TN
Soil
StudsPPM or
mg/kg

INORGANIC ELEMENT/COMPOUND

	PW-4C CONTROL SOIL 11/21/83 1230	PW-3 COMP. SUR-SOIL 11/21/83 1245	PW-2(0) SEEP BASIN 11/21/83 1425	PW-1(0) COMP. BASIN 11/21/83 1520
	MG/KG	MG/KG	MG/KG	MG/KG
ARSENIC	5.0	(7.0)	21	--
BARIUM		98	150	1700
COBALT		NA	10	--
CHROMIUM	5.0 (Hex)	27	25	23 ← Term?
COPPER	100	14	13	23
NICKEL	20	13	15	(22)
LEAD	5	88	66	54 * ←
STRONTIUM		18	18	46
TITANIUM		31	64	52
VANADIUM		31	34	33
YTTRIUM		6.6	20	30
ZINC	500	77	82	140
MERCURY	0.2	0.11	--	--
ALUMINUM		20000	24000	18000
MANGANESE		1800	3000	1200
CALCIUM		3100	3400	36000
MAGNESIUM		870	2000	7300
IRON		28000	32000	42000

SELECTED CHLORINATED COMPOUNDS

	UG/KG	UG/KG	UG/KG	UG/KG
ALDRIN	3.4	--	--	--
4,4'-DDE (P,P'-DDE)	24	--	--	--
4,4'-DDD (P,P'-DDD)	23	--	--	--
GAMMA-CHLORDANE /2	2J	--	--	--
TRANS-NONACHLOR /2	2J	--	--	--

PURGEABLE ORGANIC COMPOUNDS

CHLOROBENZENE	--	--	--	360
O&P-XYLENE(MIXED)	--	--	--	62
UNIDENTIFIED TERPENE	--	--	--	200J
CHLOROTOLUENE	--	--	--	500JN

*****SEE ATTACHED LIST OF FOOTNOTES*****

03/21/84

TABLE 3
PINEY WOODS PLAYGROUND
ANALYTICAL DATA SUMMARY
WATER/SEEP SAMPLE
CHATTAHOOGA, TENNESSEE

PW-2SW
DOWNGRAD
MANHOLE
11/21/83
1400

UG/L

INORGANIC ELEMENT/COMPOUND

BARIUM
STRONTIUM
TITANIUM
ZINC
ALUMINUM
MANGANESE

56
150
12
12
800
56

MG/L

CALCIUM
MAGNESIUM
IRON
SODIUM

90
12
0.6
16

*****SEE ATTACHED LIST OF FOOTNOTES*****

FOOTNOTES FOR DATA SUMMARY TABLES

- The parameter was analyzed for but not detected. Detection limits are specified on the analytical data sheets.
- NA Analysis was not conducted for this parameter.
- NAI Analysis for this parameter was attempted but could not be completed because of interference.
- J Estimated value.
- K Actual value is known to be less than the value given.
- L Actual value is known to be greater than the value given.
- N Presumptive evidence of the presence of the material.
- A Average value based on two or more observations.
- 1 When no value is reported, see chlordane constituents.
- 2 Constituent or metabolite of technical chlordane.

Remark - See analytical data sheet for additional information.

Site No. TND 100842400

Reference No. 9

Site No. TND 100842400

Reference No. 10

HAZARDOUS WASTE SITE INVESTIGATION
PINEY WOODS PLAYGROUND
CHATTANOOGA, TENNESSEE
PROJECT NO. 84-017
MAY 31, 1984

INTRODUCTION

On November 21, 1983 an investigation was conducted at Piney Woods Playground, Chattanooga, Tennessee, by Jim Kopotic, U. S. Environmental Protection Agency (US-EPA), Region IV, Environmental Services Division (ESD). This investigation was requested by the US-EPA, Region IV, Air and Waste Management Division (AWMD), to determine if contaminants are present on the surface of the playground; in particular those contaminants associated with wastes disposed of at Residue Hill and detected in the seepage of Piney Woods Spring during previous US-EPA investigations (1,2,3).

STUDY AREA AND SCOPE

The site is located in southwest Chattanooga, Tennessee, between Wilson Road and Central Avenue (Figure 1). The area is surrounded by several large industrial facilities and heavily travelled roads, including Interstate 24 located approximately one mile north of the playground. Piney Woods Playground occupies approximately one acre of land 400 feet south of Residue Hill (Velsicol Chemical Corporation). *by 52nd Street*
3.9 acres added to maps

The scope of this investigation included the collection of surface soil samples from the playground, and water and sediment/soil samples from the seep drainage basin (Figure 2). All samples collected during this investigation were split with Velsicol personnel Dan Phelps (Environmental Manager) and Lewis Cox (Environmental Technician).

SUMMARY

Elevated concentrations of lead, ranging from 54 to 88 mg/kg, were detected in the soil/sediment samples from Piney Woods Playground and the seep basin. Elevated concentrations of arsenic (7.0 and 21 mg/kg) were detected in the soil samples from the playground. The control soil sample contained mercury and several pesticides, not detected in the other samples. Several solvents, ranging in concentration from 62 ug/kg xylene to 500 ug/kg (estimated concentration) of chlorotoluene (tentative identification), were detected in the sediment from the seep basin and were not detected in the other samples.

RESULTS AND DISCUSSION

General

The order of sample collection was from areas of suspected low contamination to areas of suspected high contamination. Sample collection included: a control surface soil sample; a composite surface soil sample from the playground area; a sample from flowing water in the seep drainage basin; and two sediment samples collected from the seep drainage basin. Table 1 provides a description of the sampling stations. A summary of the analytical data for those compounds detected is presented in Tables 2 and 3. A photographic log and photographs of the site are included as Appendix A. The complete analytical results are attached to this report as Appendix B.

Playground

The control soil sample (PW-4C) was collected from an area of Piney Woods Playground south of the playground restrooms (Figure 2). The playground is situated in a small valley with the north, east, and south boundary sloping toward the playground. Although analytical data revealed that sample PW-4C contained five organic compounds (Table 2), which were not detected in the other samples, this area was chosen because of the location with respect to Residue Hill, the seep, possible run-off of material (pesticides, fertilizer, etc.) from the surrounding homes, and because it is in an area of lesser use and travel compared to other areas of Piney Woods Playground. The composite soil sample (PW-3) from the playground contained the same 17 metals detected in sample PW-4C. However, no organic compounds were detected in sample PW-3 above the minimum detection limit (Appendix B).

Arsenic was detected at 7.0 mg/kg and 21 mg/kg in samples PW-4C and PW-3, respectively. Analytical data from the 1972 Urban Soils Monitoring Program for five United States cities reported the estimated geometric mean for arsenic concentrations in urban soils ranged from 1.6 ppm (mg/kg) in Lake Charles, Louisiana, to 13.0 ppm (mg/kg) in Reading, Pennsylvania (4).

Lead, which is generally found to occur naturally in soils at a concentration ranging from 10-20 ppm (mg/kg) (4), was detected at 88 mg/kg and 66 mg/kg in samples PW-4C and PW-3, respectively. Analytical data from the same 1972 Urban Soils Monitoring Program report revealed lead concentrations (estimated geometric mean) that ranged from 39.0 ppm (mg/kg) in urban soils of Lake Charles, Louisiana to 267.0 ppm (mg/kg) in urban soils of Pittsburgh, Pennsylvania (4). Analytical data from the 1973 Urban Soils Monitoring Program reported the estimated geometric mean for lead concentrations in urban soils of five different United States cities to range from 41.6 ppm (mg/kg) in Greenville, South Carolina to 203.2 ppm (mg/kg) in Washington, D.C. (5).

Mercury was detected at 0.11 mg/kg in the control soil sample (PW-4C), but was not detected in sample PW-3. In a US-EPA memo, "Metals in Soil - A Brief Summary," the geometric mean concentration for mercury in Eastern United States Soils was 0.096 ppm (mg/kg) (6).

Refer to Table 2, Analytical Data Summary for information on the remaining 14 metals not discussed but detected in samples PW-4C and PW-3.

Aldrin, an insecticide used primarily for control of soil insects and termite control around buildings, was detected in sample PW-4C at 3.4 ug/kg and was not detected in sample PW-3. Analytical data from the 1971 Urban Soils Monitoring Program reported the estimated geometric mean for aldrin concentrations to range from non-detected for urban soils from Gadsden, Alabama; Macon, Georgia; and Newport News, Virginia to 3 ppb (3 ug/kg) in Hartford, Connecticut (7).

4,4'-DDE (p,p'-DDE), a product of the degradation of DDT, was detected in sample PW-4C at 24 ug/kg and 4,4'-DDD (p,p'-DDD) was detected at 23 ug/kg in sample PW-4C; neither of these compounds were detected in sample PW-3.

Two constituents of technical chlordane (gamma-chlordane and trans-nonachlor) were detected at estimated concentrations of 2 ug/kg, each, in sample PW-4C, and were not detected in sample PW-3.

Seep Basin

The water sample from the seep drainage basin (PW-2SW) contained ten metals ranging in concentration from 0.012 mg/l for titanium to 90 mg/l for calcium (Table 3). No organic compounds were detected above the minimum detection limit (Appendix B). The water in the seep basin appeared to be coming from a zone of very small individual seeps or outcrops approximately 60 feet south of the French drain system, and were collecting to form a very small stream. Sample PW-2SW was collected approximately 100 feet south of the seep zone. Approximately 160 feet south of the seep zone there appeared to be a recharge zone (Figure 2; photographs 17-19). It should be noted that the National Oceanic and Atmospheric Administration (NOAA) station, Chattanooga, Tennessee, indicated that precipitation for November 20, 1983, was 1.46 inches.

The sediment sample (PW-2(0)) was collected at the same location as PW-2SW. This sample contained 15 metals ranging in concentration from 20 mg/kg chromium to 70,000 mg/kg iron. Arsenic and mercury were not detected. Lead concentration was 78 mg/kg. No organic compounds were detected above the minimum detection limits.

Site No. TND 100842400

Reference No. 11

85°22'30"

GEOLOGIC MAP OF HAMILTON COUNTY, TENNESSEE

Including Mineral Resources Data and Contours Showing Magnetic Intensity

Compiled by

ROBERT C. MILICI, ROBERT L. WILSON, STUART W. MAHER,
ALVIN R. LEAMON, LARRY M. KNOX, AND ROBERT W. JOHNSON, JR.

1978

DESCRIPTION OF MAP UNITS

[Alluvium and other surficial deposits not shown on map]

MISSISSIPPIAN

brownish black, fine- to medium-grained, thin- to medium-bedded, fossil-fragmental with some oolitic zones, locally has petroliferous odor when broken, some beds dolomitic, stylolites common; locally contains partings and very thin beds of greenish-gray to gray shale. The base is marked by as much as 40 feet of shale, olive, fissile to thinly laminated, commonly very fossiliferous; and sandstone, fine-grained, olive-gray, thin- to medium-bedded, in part crossbedded, in some areas has calcareous matrix. Thickness about 200 to 460 feet.

The lower part of the Newman Limestone (Mnl) contains equivalents of the Montegale, St. Louis, and Warsaw Limestones. The unit consists of limestone, light-olive-gray to olive-gray to dark-gray, and a few interbeds of dusky-yellowish-gray dolomite. The limestone is cryptocrystalline and very fine grained to coarse grained and crystalline, thin to very thick bedded, commonly crossbedded, stylolitic; many beds oolitic with very high percentage of calcium carbonate, many fossil-fragmental, some dolomitic; locally has petroliferous odor when broken; partings and very thin beds of greenish-gray to gray shale present in places; locally cherty. Thickness about 400 feet.

Mfp

FORT PAYNE CHERT

Limestone and dolomite, highly siliceous, gray, fine- to coarse-grained, weathers to thick chert ledges. Thin pale-green shale (Maury Shale) at base. Thickness about 200 feet.

DEVONIAN and MISSISSIPPIAN

MDc

CHATTANOOGA SHALE

Shale, brownish-black (weathers yellowish-orange to brown), bituminous, fissile. Thickness 10 to 20 feet.

SILURIAN

Sr

ROCKWOOD FORMATION

Shale, gray and greenish-gray, with thin beds of siltstone and sandstone. Thin hematite layers and lenses occur in upper part. Thickness 200 to 300 feet.

Ou

UPPER ORDOVICIAN FORMATIONS, UNDIFFERENTIATED

Includes equivalents of the Inman, Leipers, Shellmound, and Sequatchie Formations. Inman and Sequatchie Formations are mostly greenish-gray to grayish-red dolomitic calcilitites to calcisiltites, which in places contain an abundance of mudcracks and rip-up clasts. Shellmound Formation is generally medium-gray, argillaceous or silty, fossiliferous calcilitite to calcarenite. Shellmound and Sequatchie Formations commonly contain the Fernvale Limestone Member, which is gray, yellowish-orange or grayish-red, fossiliferous, hematitic calcarenite.

Och On
Osr

CHICKAMAUGA SUPERGROUP

Limestone, gray, mostly fine- to medium-grained, thin- to medium-bedded, in part shaly and nodular. Locally contains beds of crystalline limestone, and reddish silty limestone. Thickness 1,500 to 1,800 feet. Och-Chickamauga Supergroup, Undifferentiated; On - Nashville Group, Osr - Stones River Group.

Oku

KNOX GROUP (ORDOVICIAN FORMATIONS)

Dolomite and minor limestone, very siliceous, light- to dark-gray, fine- to coarse-grained, thin- to thick bedded, weathers to cherty rubble. Thickness about 1,600 feet.

CAMBRIAN and ORDOVICIAN

Ock

KNOX GROUP, UNDIFFERENTIATED

Dolomite and minor limestone, very siliceous, light- to dark-gray, fine- to coarse-grained, thin- to thick bedded, weathers to cherty rubble. Thickness about 2,600 feet.

Ccr

COPPER RIDGE DOLOMITE

Dolomite, siliceous, light- to dark-gray, fine- to coarse-crystalline, medium- to thick bedded, asphaltic odor when broken, weathers to dark-colored chert. Cryptozoans abundant in lower part. Thickness about 1,000 feet.

Emn
Cc

CONASAUGA GROUP

Includes Conasauga Shale (Cc) and Maynardville Limestone (Emn). Shale, argillaceous, with thin interbeds of limestone and siltstone layers in lower part, light olive to brown; gray limestone (Maynardville) as much as 300 feet thick occurs at top. Estimated thickness 1,500 feet.

Cr

ROME FORMATION

Shale, siltstone and sandstone, divided into an upper sandstone-bearing member and a lower Apison Shale Member. Sandstone-bearing member consists of about 300 feet of thin to massively bedded sandstone interbedded with grayish red, purple, yellow and green siltstone and shale; in places contains a prominent bed of gray, argillaceous, dolomitic limestone in lower part. Apison Shale Member consists of about 500 feet of grayish-red, green, purple and brown siltstone and shale.

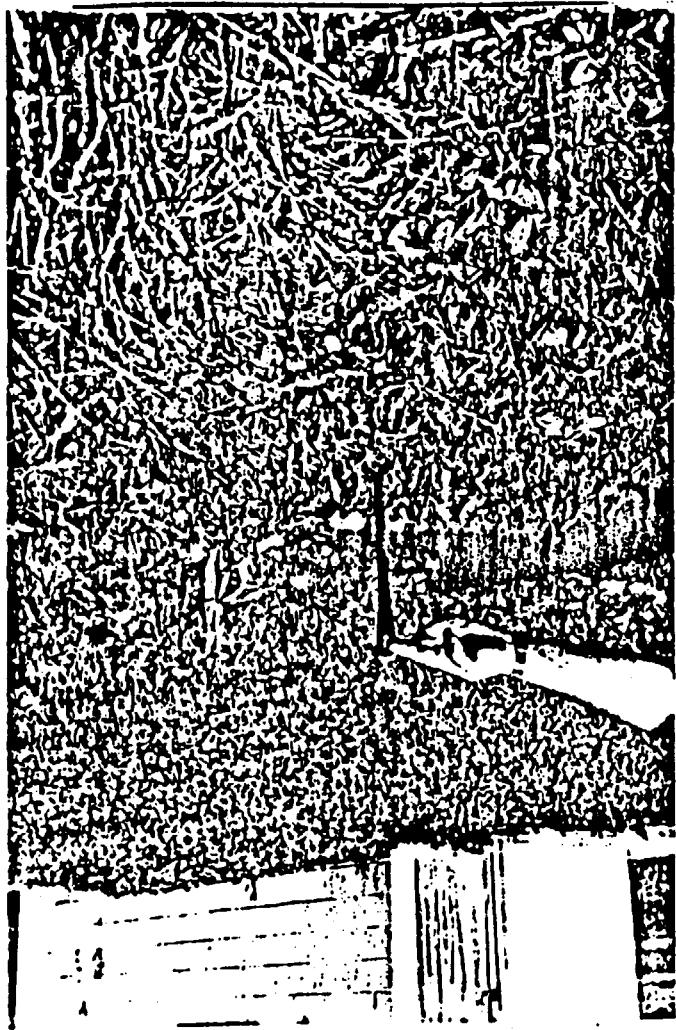
CAMBRIAN

APPENDIX A

PHOTOGRAPH LOG
PINEY WOODS PLAYGROUND
CHATTANOOGA, TENNESSEE

<u>Photograph</u>	<u>Date</u>	<u>Time</u>	<u>Description</u>
1	11-21-83	1240	Station location for soil sample PW-4C.
2	11-21-83	1241	Close-up of station location PW-4C.
3	11-21-83	1433	Station location for samples PW-2SW and PW-2(0).
4-10	11-21-83	1600	Panoramic view of Piney Woods Playground.
11	11-21-83	1635	Sample location PW-3, Station 2.
12	11-21-83	1636	Sample location PW-3, Station 3.
13	11-21-83	1640	Sample location PW-3, Station 4.
14	11-21-83	1641	Manhole - location of seep collection system.
15	11-21-83	1643	Station PW-1.
16	11-21-83	1644	Station PW-1.
17	11-21-83	1700	Recharge area for water in seep drainage basin.
18	11-21-83	1702	Close up of the recharge area.
19	11-21-83	1703	Downgradient of recharge area.

1.



2.



3.



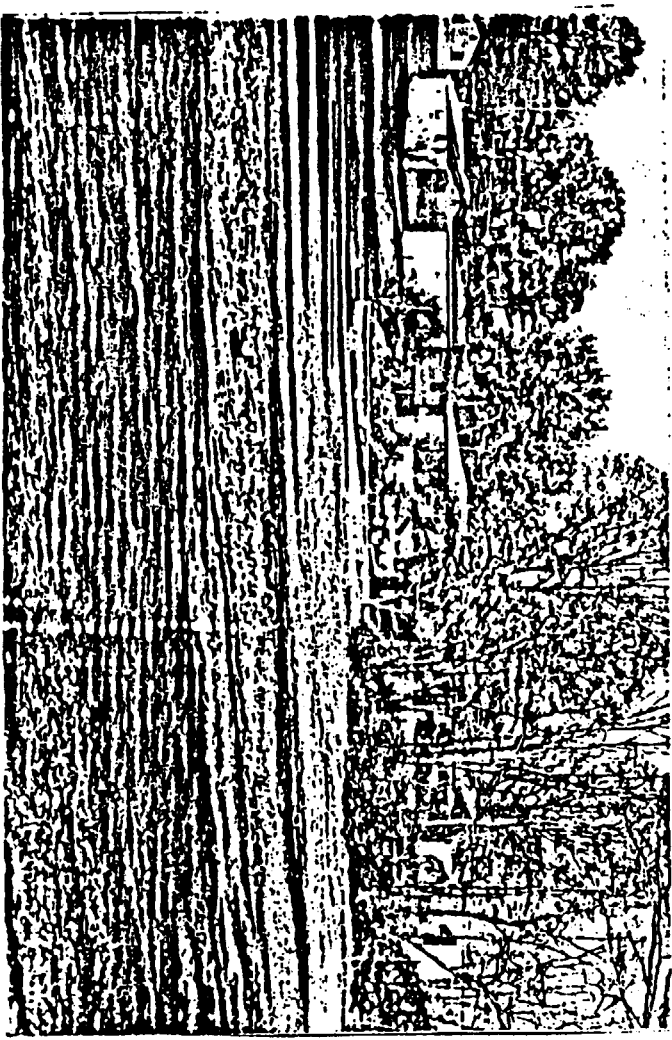
4.



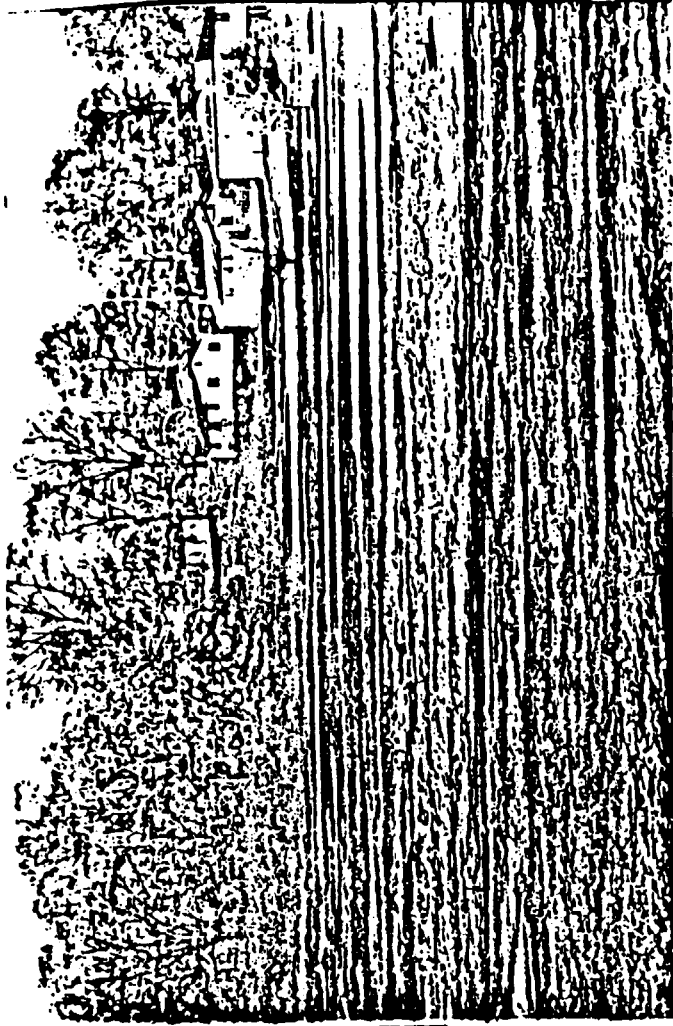
5.



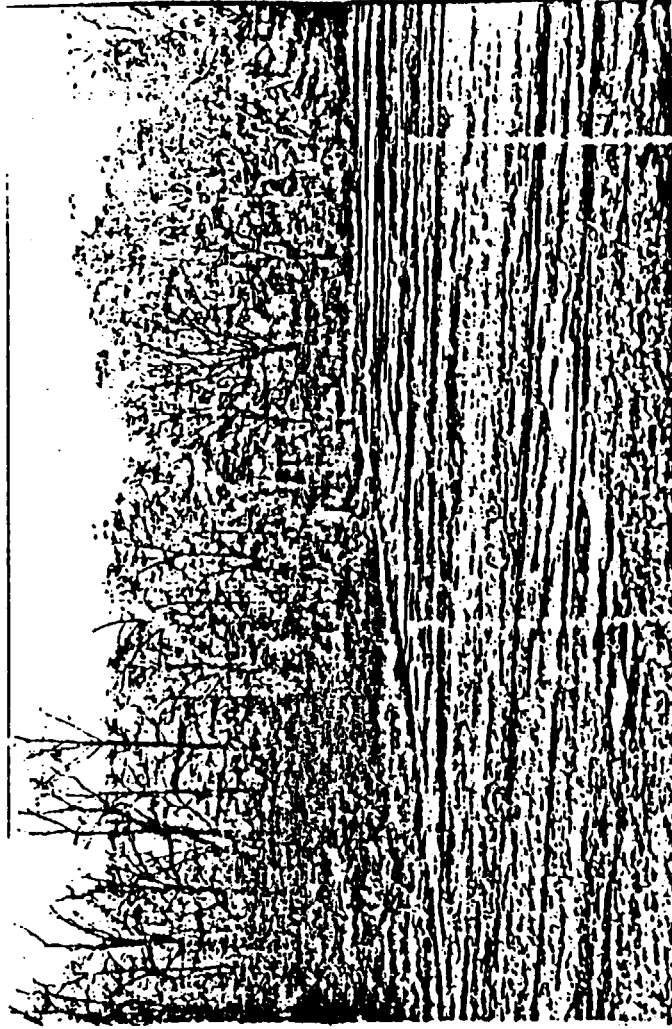
6.

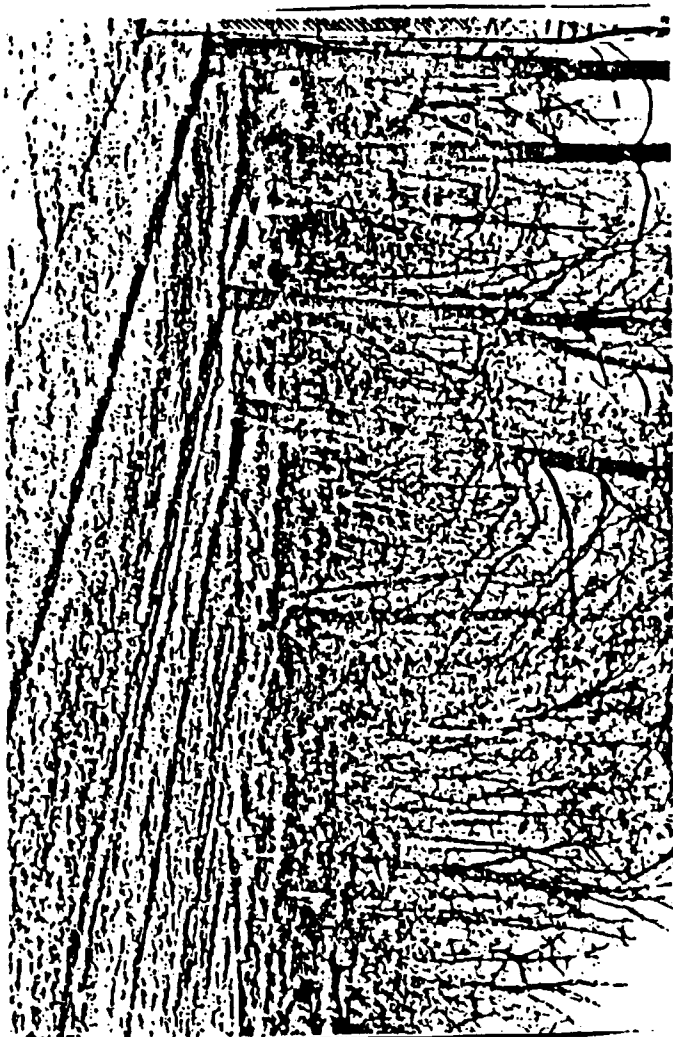


7.

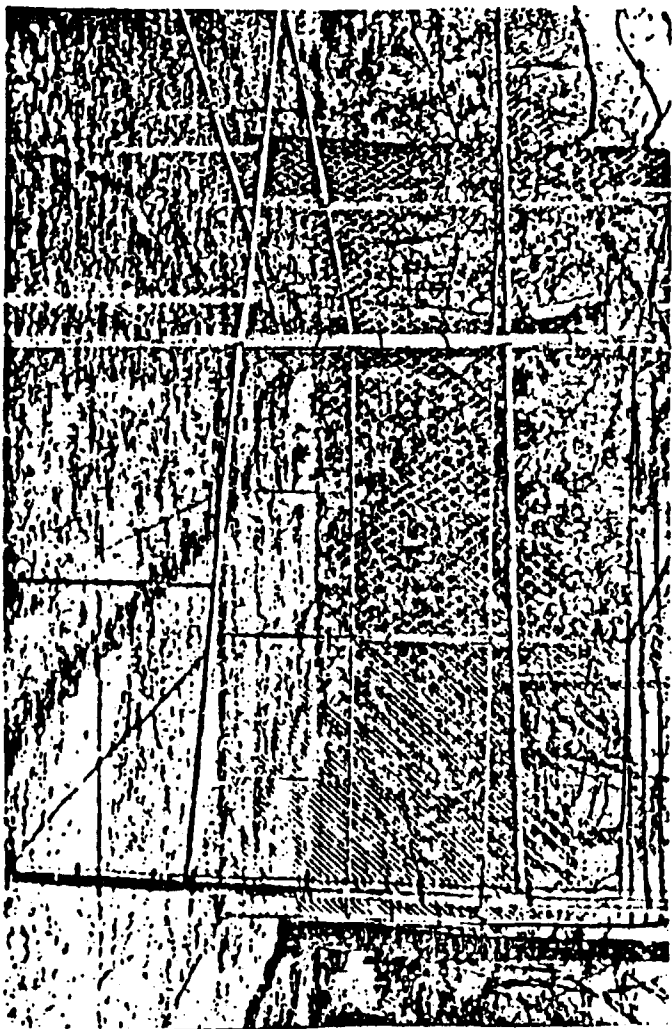


8.





9.

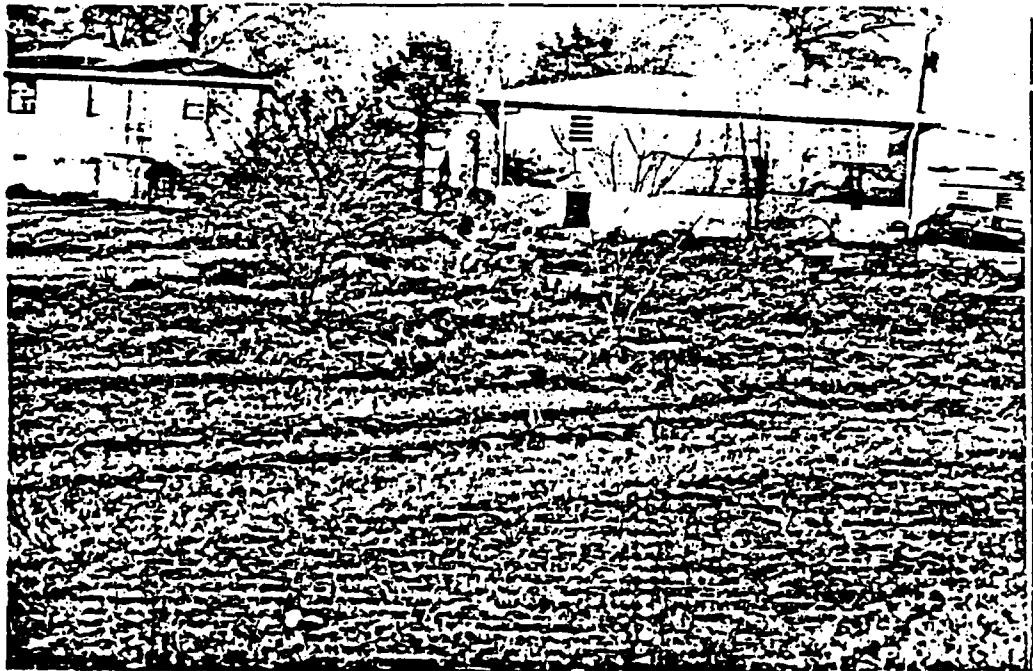


10.

11.



12.



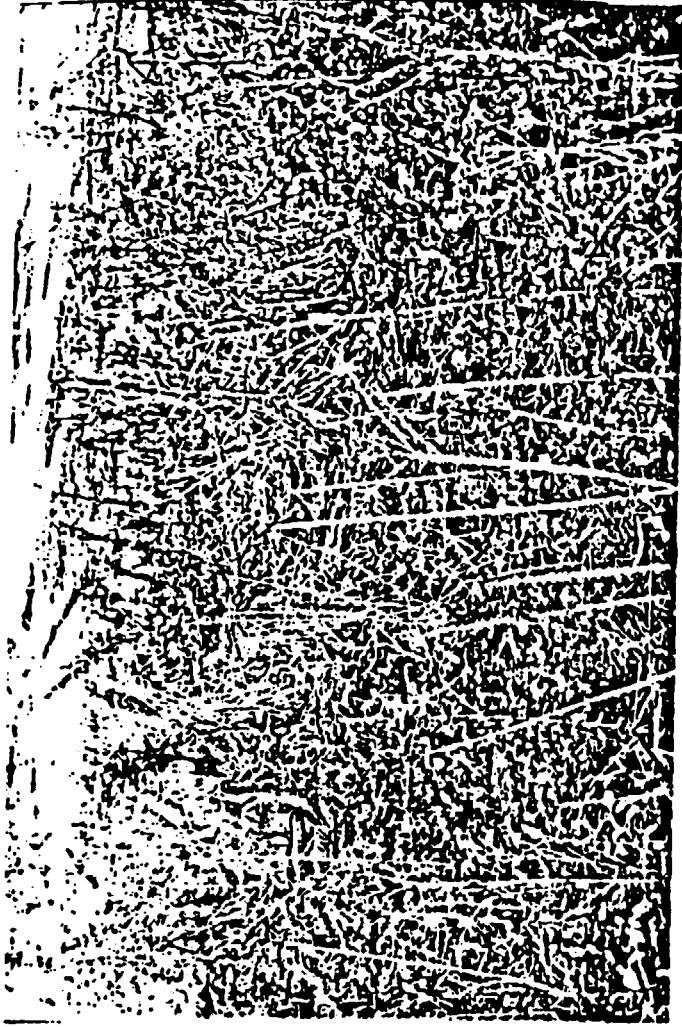
13.



14.

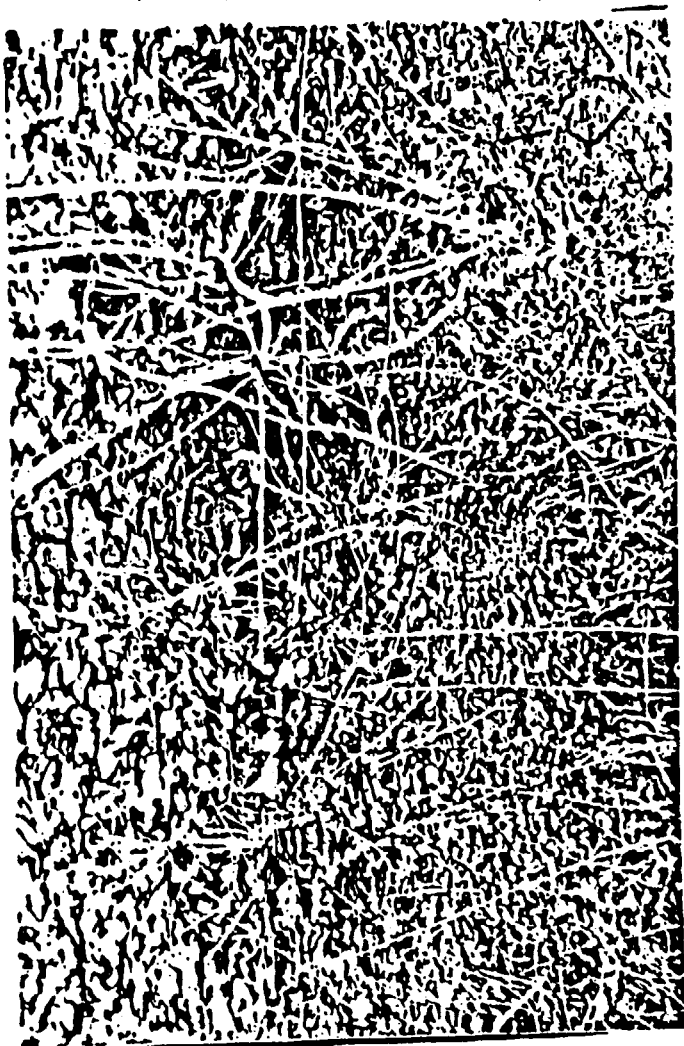


15.



16.

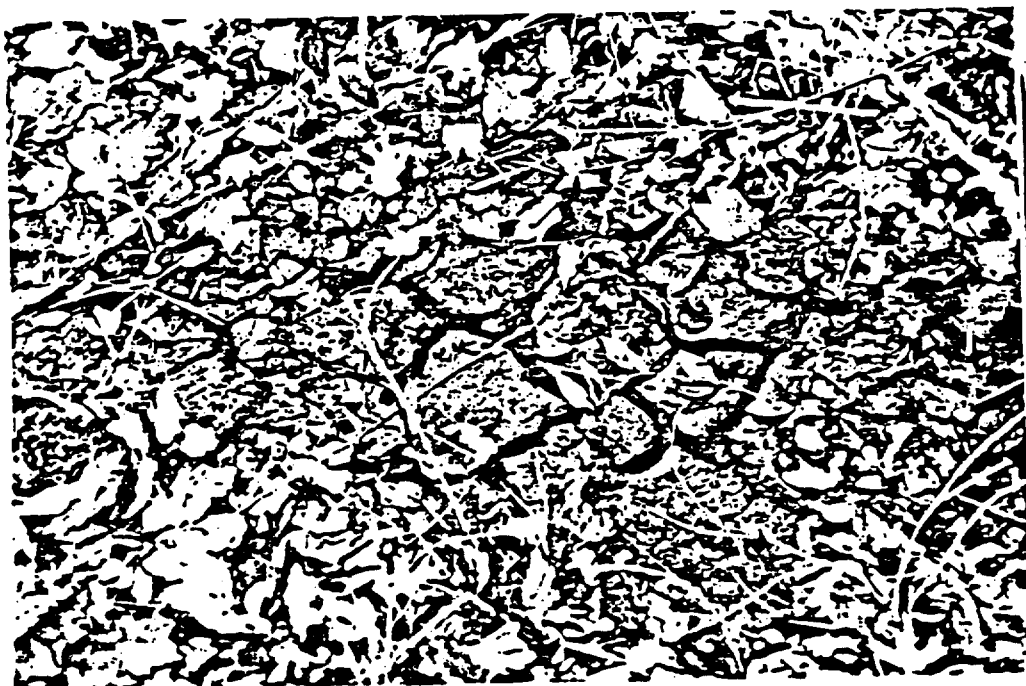




17.



18.



APPENDIX B

VOA

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-FSD, REG IV
ATHENS GEORGIA

01/11/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE (DRY WT)

SAMPLE NO.: 84C 411 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTAHOOGA STATE: TN

STATION I.D.: P-4C CONTROL SOIL SAMPLE APP. 30' BEHIND RESTROOM
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1230
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLOVITT
SEALED: YES

CHEMIST: FRA
ANALYTICAL METHOD:

REMARKS:
REMARKS:

SAMPLE LOG VERIFIED BY: TBN SAMPLE DATA VERIFIED BY: FRA

REMARKS

FOOTNOTES

NA-AVERAGE VALUE NA-NOT ANALYZED NA1-INTERFERENCES
EJ-ESTIMATED VALUE EH-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
AK-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
AI-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
AU-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
NA	UG/KG	ACROLEIN	34213
NA	UG/KG	ACRYLONITRILE	34218
6U	UG/KG	CHLOROMETHANE	34421
6U	UG/KG	BROMOMETHANE	34416
6U	UG/KG	VINYL CHLORIDE	34495
6U	UG/KG	CHLOROETHANE	34314
6U	UG/KG	METHYLENE CHLORIDE	34426
6U	UG/KG	1,1-DICHLOROETHENE	34504
6U	UG/KG	1,1-DICHLOROETHANE	34499
6U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
6U	UG/KG	CHLOROFORM	34318
6U	UG/KG	1,2-DICHLOROETHANE	34534
6U	UG/KG	1,1,1-TRICHLOROETHANE	34509
6U	UG/KG	CARBON TETRACHLORIDE	34299
6U	UG/KG	BROMODICHLOROMETHANE	34330
6U	UG/KG	1,2-DICHLOROPROPANE	34544
6U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
6U	UG/KG	TRICHLOROETHENE	34487
6U	UG/KG	BENZENE	34237
6U	UG/KG	DIBROMOCHLOROMETHANE	34309
6U	UG/KG	1,1,2-TRICHLOROETHANE	34514
6U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
6U	UG/KG	2-CHLOROETHYL VINYL ETHER	34579
6U	UG/KG	BROMOFORM	34290
6U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
6U	UG/KG	TETRACHLOROETHENE	34678
6U	UG/KG	TOLUENE	34483
6U	UG/KG	CHLOROBENZENE	34304
6U	UG/KG	ETHYL BENZENE	34374
6U	UG/KG	M-XYLENE	
6U	UG/KG	OLP-XYLENE (MIXED)	
21	%	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
FPL-FSD, REG IV
ATLANTA, GEORGIA

01/20/84

METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 84C 411 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTAHOOGA STATE: TN

STATION 1, J. 1 PC-4C CONTROL SOIL SAMPLE APP. 30' BEHIND RESTROOM
STREET STATION RUI

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1230
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: KAL
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TOM SAMPLE DATA VERIFIED BY: MAW

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT
30	MG/KG	SILVER
7.0	MG/KG	ARSENIC
NA	MG/KG	BORON
98	MG/KG	BARIUM
30	MG/KG	BERYLLIUM
30	MG/KG	CADMIUM
NA	MG/KG	COPPER
27	MG/KG	CHROMIUM
14	MG/KG	COPPER
60	MG/KG	POLYBROMINE
13	MG/KG	NICKEL
88	MG/KG	LEAD
10	MG/KG	ANTIMONY
120	MG/KG	SELENIUM
300	MG/KG	TIN
18	MG/KG	STRONTIUM
120	MG/KG	TELLURIUM
31	MG/KG	TITANIUM
NA	MG/KG	THALLIUM
31	MG/KG	VANADIUM
6.6	MG/KG	YTHIUM
77	MG/KG	ZINC
NA	MG/KG	ZIRCONIUM
0.11	MG/KG	MERCURY
20000	MG/KG	ALUMINUM
1800	MG/KG	MANGANESE
3100	MG/KG	CALCIUM
870	MG/KG	MAGNESIUM
28000	MG/KG	IRON
3000	MG/KG	SODIUM
NA	MG/KG	CHROMIUM, HEXAVALENT
21	%	MOISTURE

STONET
01078
01003
01023
01008
01013
01028
01036
01029
01043
01063
01068
01052
01098
01146
01103
01083
45513
01153
34480
01088
45514
01093
01163
71921
01108
01053
00917
00924
01170
00934
70320

*****NOTES*****

NA-AVERAGE VALUE NA-NOT ANALYZED NA-INTERFERENCES
N-ESTIMATED VALUE N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
N-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
N-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
N-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, REG IV
ATHENS GEORGIA

01/11/84

PUNGABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: R4C 412 SAMPLE TYPE: SOIL

PROJECT NO.: R4-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTAHOOGA STATE: TN

STATION 1, U. 1 P. 1 COMPOSITE OF PLAYGROUND SURFACE SOIL
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1245
SAMPLE COLLECTION: STOP DATE/TIME 11/21/83 1310

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: FRA
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRB SAMPLE DATA VERIFIED BY: FRA

*****REMARKS*****

*******ANALYTICAL RESULTS*******

RESULTS	UNITS	COMPOUND	STORL
NA	UG/KG	ACHOLEIN	34213
NA	UG/KG	ACRYLONITRILE	34214
70	UG/KG	CHLOROMETHANE	34421
70	UG/KG	BROMOMETHANE	34416
70	UG/KG	VINYL CHLORIDE	34495
70	UG/KG	CHLOROETHANE	34314
70	UG/KG	METHYLENE CHLORIDE	34426
70	UG/KG	1,1-DICHLOROETHENE	34504
70	UG/KG	1,1-DICHLOROETHANE	34499
70	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
70	UG/KG	CHLOROFORM	34318
70	UG/KG	1,2-DICHLOROETHANE	34534
70	UG/KG	1,1,1-TRICHLOROETHANE	34509
70	UG/KG	CARBON TETRACHLORIDE	34299
70	UG/KG	BROMODICHLOROMETHANE	34330
70	UG/KG	1,2-DICHLOROPROPANE	34544
70	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
70	UG/KG	TRICHLOROETHENE	34487
70	UG/KG	BENZENE	34237
70	UG/KG	DIBROMOCHLOROMETHANE	34309
70	UG/KG	1,1,2-TRICHLOROETHANE	34514
70	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
70	UG/KG	2-CHLOROETHYL VINYL ETHER	34579
70	UG/KG	BROMOFORM	34290
70	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
70	UG/KG	TETRACHLOROETHENE	34488
70	UG/KG	TOLUENE	34483
70	UG/KG	CHLOROBENZENE	3430
70	UG/KG	ETHYL BENZENE	3437
70	UG/KG	M-XYLENE	
70	UG/KG	O,P-XYLENE(MIXED)	
32		MOISTURE	7032

*****FOOTNOTES*****

- *A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
- *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
- *K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
- *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
- *U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-RSD, REG IV
ATHENS GEORGIA

01/11/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLODGE(DRY WT)

SAMPLE NO.: RAC 413 SAMPLE TYPE: SEDIM

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PILEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION J, U, 3 PK-2(0) APP 100' DOWNGRADIENT OF SEEP MANHOLE
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1425
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: FRA
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB SAMPLE DATA VERIFIED BY: FRA

REMARKS

FOOTNOTES

- *A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
- *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
- *K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
- *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
- *U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORE
NA	UG/KG	ACROLEIN	34213
NA	UG/KG	ACRYLONITRILE	34219
9U	UG/KG	CHLOROMETHANE	34421
9U	UG/KG	BROMOMETHANE	34418
9U	UG/KG	VINYL CHLORIDE	34495
9U	UG/KG	CHLOROETHANE	34314
9U	UG/KG	METHYLENE CHLORIDE	34426
9U	UG/KG	1,1-DICHLOROETHENE	34504
9U	UG/KG	1,1-DICHLOROETHANE	34499
9U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
9U	UG/KG	CHLOROFORM	34318
9U	UG/KG	1,2-DICHLOROETHANE	34514
9U	UG/KG	1,1,1-TRICHLOROETHANE	34509
9U	UG/KG	CARBON TETRACHLORIDE	34299
9U	UG/KG	BROMODICHLOROMETHANE	34330
9U	UG/KG	1,2-DICHLOROPROPANE	34544
9U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
9U	UG/KG	TRICHLOROETHENE	34487
9U	UG/KG	BENZENE	34237
9U	UG/KG	DIBROMOCHLOROMETHANE	34309
9U	UG/KG	1,1,2-TRICHLOROETHANE	34514
9U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
9U	UG/KG	2-CHLOROETHYL VINYL ETHER	34579
9U	UG/KG	BROMOPURH	34290
9U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
9U	UG/KG	TETRACHLOROETHENE	34478
9U	UG/KG	TOLUENE	34483
9U	UG/KG	CHLOROBENZENE	34304
9U	UG/KG	ETHYL BENZENE	34314
9U	UG/KG	M-XYLENE	
9U	UG/KG	O/P-XYLENE(MIXED)	
49	%	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-RSD, REG IV
ATHENS GEORGIA

01/11/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO. 1 84C 415 SAMPLE TYPE: SOIL

PROJECT NO. 1 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION 1, U, 1 PW-1(0) COMPOSITE OF SOIL SEEP DRAINAGE BASIN
JOKER STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1520
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: FRA
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRB SAMPLE DATA VERIFIED BY: FRA

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	BTURE
NA	UG/KG	ACRYLONITRILE	34213
NA	UG/KG	ACRYLONITRILE	34214
16U	UG/KG	CHLOROMETHANE	34421
16U	UG/KG	BROMOMETHANE	34416
16U	UG/KG	VINYL CHLORIDE	34495
16U	UG/KG	CHLOROETHANE	34314
16U	UG/KG	METHYLENE CHLORIDE	34426
16U	UG/KG	1,1-DICHLOROETHANE	34504
16U	UG/KG	1,1-DICHLOROETHANE	34499
16U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
16U	UG/KG	CHLOROFORM	34318
16U	UG/KG	1,2-DICHLOROETHANE	34534
16U	UG/KG	1,1,1-TRICHLOROETHANE	34509
16U	UG/KG	CARBON TETRACHLORIDE	34299
16U	UG/KG	BROMODICHLOROETHANE	34330
16U	UG/KG	1,2-DICHLOROPROPANE	34544
16U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
16U	UG/KG	TRICHLOROETHENE	34487
16U	UG/KG	BENZENE	34237
16U	UG/KG	DIBROMOCHLOROETHANE	34309
16U	UG/KG	1,1,2-TRICHLOROETHANE	34514
16U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
16U	UG/KG	2-CHLOROETHYL VINYL ETHER	34579
16U	UG/KG	BROMOFORM	34290
16U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
16U	UG/KG	TETRACHLOROETHENE	34478
16U	UG/KG	TOLUENE	34483
16U	UG/KG	CHLOROBENZENE	34308
16U	UG/KG	ETHYL BENZENE	34374
16U	UG/KG	M-XYLENE	
62	UG/KG	O&P-XYLENE (FIXED)	
70	%	MOISTURE	70320

FOOTNOTES:
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, REG IV
ATHENS GEORGIA

01/11/84 PURGEABLE ORGANICS ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 84C 415 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION I.D.: PW-1(5) COMPOSITE OF SOIL SEEP DRAINAGE BASIN
STURK STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1520
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST:
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THH DATA VERIFIED BY: FRA

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	IN: UG/KG	COMPOUND NAME
200J		UNIDENTIFIED TERPENE
500JN		CHLOROTOLUENE

*****FOOTNOTES*****

- *A-AVERAGE VALUE
- *J-ESTIMATED VALUE
- *K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
- *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
- *U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS THE MINIMUM DETECTION LIMIT.
- *NA-DUT ANALYZED
- *NI-INTERFERENCES
- *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL

01/20/94

SAMPLE NO.: RJC 414 SAMPLE TYPE: LEACH

STATION 1.001 PS-20w AEP. 100' DOWNGRADE OF SEEP MANHOLE
STORY STATION 501

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REF: DATE/TIME: 11/22/93 1425 REC'D BY: D COLQUITT
SEALED: 1FS

REMARKS
REMARKS

SAMPLE LOG VERIFIED BY: CRH SAMPLE DATA VERIFIED BY: NAW

REMARKS

RESULTS	UNITS	ELEMENT
100	UG/L	SILVER
300	UG/L	ARSENIC
NA	UG/L	MURON
56	UG/L	BARIUM
100	UG/L	BERYLLIUM
100	UG/L	CADMIUM
200	UG/L	COPALT
100	UG/L	CHROMIUM
100	UG/L	COBALT
200	UG/L	COLUMBIUM
200	UG/L	NICKEL
300	UG/L	LEAD
300	UG/L	ANTIMONY
400	UG/L	SELENIUM
1000	UG/L	TIN
150	UG/L	STRONTIUM
400	UG/L	TELLURIUM
12	UG/L	TITANIUM
NA	UG/L	THALLIUM
100	UG/L	VAADIUM
100	UG/L	YLLIUM
12	UG/L	ZINC
NA	UG/L	ZINCORIUM
0.50	UG/L	MERCURY
400	UG/L	ALUMINUM
56	UG/L	MANGANESE
90	UG/L	CALCIUM
12	UG/L	MAGNESIUM
0.6	UG/L	IRON
16	UG/L	SODIUM
NA	UG/L	COPPER, UO, HE, ZINC, ALUMINUM

STONE
0107
0100
01022
01007
01012
01017
01037
01034
01042
01062
01067
01051
01097
01147
01102
01082
01054
01152
01054
01087
01203
01202
01062
01190
01105
01055
00946
00977
74014
0092
01032

FOOTNOTES
 *A-AVERAGE VALUE *H-HIT ANALYZED *HAI-INTERFERENCES
 *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
 *K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
 *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
 *U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
 THE MINIMUM DETECTION LIMIT.

01/27/84
EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SFDJ4ENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO. 1	SAMPLE TYPE 1
00.1	001
00.2	002
00.3	003
00.4	004
00.5	005
00.6	006
00.7	007
00.8	008
00.9	009
00.10	010
00.11	011
00.12	012
00.13	013
00.14	014
00.15	015
00.16	016
00.17	017
00.18	018
00.19	019
00.20	020
00.21	021
00.22	022
00.23	023
00.24	024
00.25	025
00.26	026
00.27	027
00.28	028
00.29	029
00.30	030
00.31	031
00.32	032
00.33	033
00.34	034
00.35	035
00.36	036
00.37	037
00.38	038
00.39	039
00.40	040
00.41	041
00.42	042
00.43	043
00.44	044
00.45	045
00.46	046
00.47	047
00.48	048
00.49	049
00.50	050
00.51	051
00.52	052
00.53	053
00.54	054
00.55	055
00.56	056
00.57	057
00.58	058
00.59	059
00.60	060
00.61	061
00.62	062
00.63	063
00.64	064
00.65	065
00.66	066
00.67	067
00.68	068
00.69	069
00.70	070
00.71	071
00.72	072
00.73	073
00.74	074
00.75	075
00.76	076
00.77	077
00.78	078
00.79	079
00.80	080
00.81	081
00.82	082
00.83	083
00.84	084
00.85	085
00.86	086
00.87	087
00.88	088
00.89	089
00.90	090
00.91	091
00.92	092
00.93	093
00.94	094
00.95	095
00.96	096
00.97	097
00.98	098
00.99	099
01.00	100
01.01	101
01.02	102
01.03	103
01.04	104
01.05	105
01.06	106
01.07	107
01.08	108
01.09	109
01.10	110
01.11	111
01.12	112
01.13	113
01.14	114
01.15	115
01.16	116
01.17	117
01.18	118
01.19	119
01.20	120
01.21	121
01.22	122
01.23	123
01.24	124
01.25	125
01.26	126
01.27	127
01.28	128
01.29	129
01.30	130
01.31	131
01.32	132
01.33	133
01.34	134
01.35	135
01.36	136
01.37	137
01.38	138
01.39	139
01.40	140
01.41	141
01.42	142
01.43	143
01.44	144
01.45	145
01.46	146
01.47	147
01.48	148
01.49	149
01.50	150
01.51	151
01.52	152
01.53	153
01.54	154
01.55	155
01.56	156
01.57	157
01.58	158
01.59	159
01.60	160
01.61	161
01.62	162
01.63	163
01.64	164
01.65	165
01.66	166
01.67	167
01.68	168
01.69	169
01.70	170
01.71	171
01.72	172
01.73	173
01.74	174
01.75	175
01.76	176
01.77	177
01.78	178
01.79	179
01.80	180
01.81	181
01.82	182
01.83	183
01.84	184
01.85	185

PROJECT NO: 44-017 PROGRAM ELEMENT: NSF
SECURITY PLANT WINDS PLAYGROUND
CITY: CHATTANOUGA STATE: TN

STATION 1: D-1 P-1(0) COMPOSITE OF SOIL SEEP DRAINAGE BASIN STORED STATION NO:

SAMPLE COLLECTION	START DATE/TIME	STOP DATE/TIME
8AMPU5 (COLLECTION)	11/21/83	1520
8AMPU5 COLLECTION	STOP	00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE NO: 101 DATE/TIME: 11/22/83 1425 REC'D BY: D COLQUHITT
SEALED: YES

CHEMIST: DGR
ANALYTICAL P.F. THOU?

REMARKS:

DATA VERIFIED BY: DGR

REMARKS
QUANT. FOR ALL COMPS EXCEPT PHENOLS IS SUSPECT BASED ON QC DATA

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*****FOOTNOTES*****
**A-AVERAGE VALUE **A-NOT ANALYZED **AI-INTERFERENCE
**J-ESTIMATED VALUE **P-POSITIVE EVIDENCE OF MATERIAL
**K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
**L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
**U-INTERNAL ANALYSIS DETECTED FOR BUT NOT DETECTED. THE NUMBER IS
THE 4TH DIGIT DETECTION LIMIT.

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RESULTS

[illegible]

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, REG. IV
ATHENS, GEORGIA

01/20/84

METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE (DRY WT)

SAMPLE NO.: R4C 412 SAMPLE TYPE: SOIL

PROJECT NO.: R4-017 PROGRAM ELEMENT: NSP
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTAHOOGA STATE: TN

STATION 1: P-3 COMPOSITE OF PLAYGROUND SURFACE SOIL
STUFFET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1245
SAMPLE COLLECTION: STOP DATE/TIME 11/21/83 1310

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: MAN
ANALYTICAL METHOD:

REMARKS:
REMARKS:

SAMPLE LOG VERIFIED BY: THW SAMPLE DATA VERIFIED BY: MAN

*****REMARKS*****

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STORE
50	MG/KG	SILVER	01076
21	MG/KG	ARSENIC	01003
NA	MG/KG	MURID	01023
150	MG/KG	BARUM	01000
50	MG/KG	BERYLLIUM	01013
50	MG/KG	CADMIUM	01020
10	MG/KG	CORALIT	01030
25	MG/KG	CHROMIUM	01029
13	MG/KG	COPPER	01043
100	MG/KG	MOLYBDENUM	01063
15	MG/KG	NICKEL	01060
66	MG/KG	LEAD	01052
150	MG/KG	ANTIMONY	01090
200	MG/KG	SELENIUM	01140
500	MG/KG	TIN	01103
18	MG/KG	STRONTIUM	01083
200	MG/KG	TELLURIUM	45513
64	MG/KG	TITANIUM	01153
NA	MG/KG	THALLIUM	34480
34	MG/KG	VANADIUM	01080
20	MG/KG	VITRIUM	45514
42	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.250	MG/KG	MERCURY	71921
24000	MG/KG	ALUMINUM	01100
3000	MG/KG	MANGANESE	01053
3400	MG/KG	CALCIUM	0091
2000	MG/KG	MAGNESIUM	00920
32000	MG/KG	IRON	01170
5000	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM, HEXAVALENT	
28		NOT STORE	70320

*****FOOTNOTES*****

NA-AVERAGE VALUE NA-NOT ANALYZED NA1-INTERFERENCES
 NA2-ESTIMATED VALUE NA3-INSUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
 NA4-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
 NA5-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
 NA6-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
 THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-RSD, REG IV
ATHENS GEORGIA

01/20/84

1 METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.1 H4C 413 SAMPLE TYPE: SEDIM

PROJECT NO.1 H4-017 PROGRAM ELEMENT: NSF
SOURCE: PIPES ACROSS FLAGSTONE
CITY: CHATTANOUGA STATE: TN

STATION 1,0,1 H4-2(4) APP 100' DOWNGRADIENT OF SEEP HANHOLE
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1425
SAMPLE COLLECTION: STOP DATE/TIME 06/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: PM
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THB SAMPLE DATA VERIFIED BY: HAW

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	SIUNIT
100	MG/KG	SILVER	01078
300	MG/KG	ARSENIC	01003
NA	MG/KG	BARON	01023
180	MG/KG	BARIUM	01008
100	MG/KG	BERYLLIUM	01013
100	MG/KG	CADMIUM	01028
200	MG/KG	CORALIT	01038
20	MG/KG	CHROMIUM	01029
21	MG/KG	COPPER	01043
200	MG/KG	MOLYBDENUM	01063
22	MG/KG	NICKEL	01068
78	MG/KG	LEAD	01052
300	MG/KG	ANTIMONY	01098
400	MG/KG	SELENIUM	01146
1000	MG/KG	TIN	01103
45	MG/KG	STRONTIUM	01083
400	MG/KG	TELLURIUM	45513
54	MG/KG	TITANIUM	01153
NA	MG/KG	THALLIUM	34480
37	MG/KG	VANADIUM	01088
31	MG/KG	YTRIUM	45514
160	MG/KG	ZINC	01093
NA	MG/KG	ZINCONIUM	01163
0.250	MG/KG	MERCURY	71921
19000	MG/KG	ALUMINUM	01108
1100	MG/KG	MANGANESE	01053
5600	MG/KG	CALCIUM	00917
1800	MG/KG	MAGNESIUM	00924
70000	MG/KG	IRON	01170
10000	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM, HEXAVALENT	
48	MG/KG	UISTORE	70320

FOOTNOTES
NA-AVERAGE VALUE NA-NOT ANALYZED NA1-INTERFERENCES
J-ESTIMATED VALUE J-PROBATIVE EVIDENCE OF PRESENCE OF MATERIAL
K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-830, REG IV
ATLANTA, GEORGIA

01/20/84

METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: SAC 415 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY CREEK PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION 1.0.1 PW-110 COMPOSITE OF SOIL SEEP DRAINAGE BASIN
SIGHT STATION 401

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1520
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLOVITT
SEALED: YES

CHEMIST: M
ANALYTICAL METHOD:

REMARKS:
REMARKS:

SAMPLE LOG VERIFIED BY: TBA SAMPLE DATA VERIFIED BY: MAM

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STREET
50	MG/KG	SILVER	01078
150	MG/KG	ARSENIC	01003
NA	MG/KG	BARIUM *	01023
1700	MG/KG	BARIUM	01000
50	MG/KG	BERYLLIUM	01013
50	MG/KG	CADMIUM	01020
100	MG/KG	COBALT	01030
23	MG/KG	CHROMIUM	01029
23	MG/KG	COPPER	01043
100	MG/KG	MOLYBDEUM *	01063
32	MG/KG	NICKEL	01060
54	MG/KG	LEAD	01052
150	MG/KG	ANTIMONY	01040
200	MG/KG	SELENIUM	01140
500	MG/KG	THIUM *	01103
46	MG/KG	STRONTIUM *	01083
200	MG/KG	TELLURIUM *	45513
52	MG/KG	TITANIUM *	01153
NA	MG/KG	THALLIUM *	31460
33	MG/KG	VANADIUM *	01080
30	MG/KG	YTHIUM *	45514
140	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM *	01163
0.250	MG/KG	MERCURY	71921
18000	MG/KG	ALUMINUM	01100
1200	MG/KG	MANGANESE	01053
36000	MG/KG	CALCIUM *	00917
7300	MG/KG	MAGNESIUM	00924
42000	MG/KG	IRON	01170
5000	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM, HEXAVALENT	
69	%	MOISTURE	70320

*****FOOTNOTES*****
 *A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
 *J-ESTIMATED VALUE *N-INSUFFICIENT EVIDENCE OF PRESENCE OF MATERIAL
 *F-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
 *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
 *U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
 THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSTS MANAGEMENT SYSTEM
EPA-6.80, RFG IV
ATHENS, GEORGIA

SAMPLE NO.: 84C 411 SAMPLE TYPE: SOIL

STATION 1011 PM-4C CONTROL SML SAMPLE APP. 30' BEHIND RESTROOM,
KROPP, S.E. (104 M)

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE R/C ID: DATE/TIME 11/22/83 1425 REC'D BY: D CULQUITT
REARLD: YES

REHARR:

REMARKS:

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***POINTNOTES***
**1-AVERAGE VALUE **1-A-NOT ANALYZED **1-A-INTERFERENCE OF MATERIAL
**2-APPROXIMATE VALUE **2-PRESUMPTIVE EVIDENCE OF PRESENCE OF
**3-ACTUAL VALUE **3-UNKNOWN TO BE GREATER THAN VALUE GIVEN
**4-ACTUAL VALUE **4-ANALYZED FOR **4-ANALYZED FOR **4-ANALYZED FOR
**5-ACTUAL VALUE **5-ANALYZED FOR **5-ANALYZED FOR **5-ANALYZED FOR
**6-ACTUAL VALUE **6-ANALYZED FOR **6-ANALYZED FOR **6-ANALYZED FOR
**7-ACTUAL VALUE **7-ANALYZED FOR **7-ANALYZED FOR **7-ANALYZED FOR
**8-ACTUAL VALUE **8-ANALYZED FOR **8-ANALYZED FOR **8-ANALYZED FOR
**9-ACTUAL VALUE **9-ANALYZED FOR **9-ANALYZED FOR **9-ANALYZED FOR
**10-ACTUAL VALUE **10-ANALYZED FOR **10-ANALYZED FOR **10-ANALYZED FOR
**11-ACTUAL VALUE **11-ANALYZED FOR **11-ANALYZED FOR **11-ANALYZED FOR
**12-ACTUAL VALUE **12-ANALYZED FOR **12-ANALYZED FOR **12-ANALYZED FOR
**13-ACTUAL VALUE **13-ANALYZED FOR **13-ANALYZED FOR **13-ANALYZED FOR
**14-ACTUAL VALUE **14-ANALYZED FOR **14-ANALYZED FOR **14-ANALYZED FOR
**15-ACTUAL VALUE **15-ANALYZED FOR **15-ANALYZED FOR **15-ANALYZED FOR
**16-ACTUAL VALUE **16-ANALYZED FOR **16-ANALYZED FOR **16-ANALYZED FOR
**17-ACTUAL VALUE **17-ANALYZED FOR **17-ANALYZED FOR **17-ANALYZED FOR
**18-ACTUAL VALUE **18-ANALYZED FOR **18-ANALYZED FOR **18-ANALYZED FOR
**19-ACTUAL VALUE **19-ANALYZED FOR **19-ANALYZED FOR **19-ANALYZED FOR
**20-ACTUAL VALUE **20-ANALYZED FOR **20-ANALYZED FOR **20-ANALYZED FOR

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RESULTS	UNITS	COMPOUND	STOCK
NA	UG/KG	N-MITROSODIMETHYLAMINE	34441
NA	UG/KG	1,2-DIPHENYLAZIDINE/AZIBENZENE	34449
5000U	UG/KG	BENZIDINE	349121
5000U	UG/KG	1,3-DICHLOROBENZENE	34509
5000U	UG/KG	1,4-DICHLOROBENZENE	34514
5000U	UG/KG	1,2-DICHLOROBENZENE	34519
5000U	UG/KG	1,3-DICHLOROBENZENE	34526
5000U	UG/KG	1,4-DICHLOROBENZENE	34539
5000U	UG/KG	1,2-DICHLOROBENZENE	34544
5000U	UG/KG	1,3-DICHLOROBENZENE	34549
5000U	UG/KG	1,4-DICHLOROBENZENE	34554
5000U	UG/KG	1,2-DICHLOROBENZENE	34559
5000U	UG/KG	1,3-DICHLOROBENZENE	34564
5000U	UG/KG	1,4-DICHLOROBENZENE	34569
5000U	UG/KG	1,2-DICHLOROBENZENE	34574
5000U	UG/KG	1,3-DICHLOROBENZENE	34579
5000U	UG/KG	1,4-DICHLOROBENZENE	34584
5000U	UG/KG	1,2-DICHLOROBENZENE	34589
5000U	UG/KG	1,3-DICHLOROBENZENE	34594
5000U	UG/KG	1,4-DICHLOROBENZENE	34599
5000U	UG/KG	1,2-DICHLOROBENZENE	34604
5000U	UG/KG	1,3-DICHLOROBENZENE	34609
5000U	UG/KG	1,4-DICHLOROBENZENE	34614
5000U	UG/KG	1,2-DICHLOROBENZENE	34619
5000U	UG/KG	1,3-DICHLOROBENZENE	34624
5000U	UG/KG	1,4-DICHLOROBENZENE	34629
5000U	UG/KG	1,2-DICHLOROBENZENE	34634
5000U	UG/KG	1,3-DICHLOROBENZENE	34639
5000U	UG/KG	1,4-DICHLOROBENZENE	34644
5000U	UG/KG	1,2-DICHLOROBENZENE	34649
5000U	UG/KG	1,3-DICHLOROBENZENE	34654
5000U	UG/KG	1,4-DICHLOROBENZENE	34659
5000U	UG/KG	1,2-DICHLOROBENZENE	34664
5000U	UG/KG	1,3-DICHLOROBENZENE	34669
5000U	UG/KG	1,4-DICHLOROBENZENE	34674
5000U	UG/KG	1,2-DICHLOROBENZENE	34679
5000U	UG/KG	1,3-DICHLOROBENZENE	34684
5000U	UG/KG	1,4-DICHLOROBENZENE	34689
5000U	UG/KG	1,2-DICHLOROBENZENE	34694
5000U	UG/KG	1,3-DICHLOROBENZENE	34699
5000U	UG/KG	1,4-DICHLOROBENZENE	34704
5000U	UG/KG	1,2-DICHLOROBENZENE	34709
5000U	UG/KG	1,3-DICHLOROBENZENE	34714
5000U	UG/KG	1,4-DICHLOROBENZENE	34719
5000U	UG/KG	1,2-DICHLOROBENZENE	34724
5000U	UG/KG	1,3-DICHLOROBENZENE	34729
5000U	UG/KG	1,4-DICHLOROBENZENE	34734
5000U	UG/KG	1,2-DICHLOROBENZENE	34739
5000U	UG/KG	1,3-DICHLOROBENZENE	34744
5000U	UG/KG	1,4-DICHLOROBENZENE	34749
5000U	UG/KG	1,2-DICHLOROBENZENE	34754
5000U	UG/KG	1,3-DICHLOROBENZENE	34759
5000U	UG/KG	1,4-DICHLOROBENZENE	34764
5000U	UG/KG	1,2-DICHLOROBENZENE	34769
5000U	UG/KG	1,3-DICHLOROBENZENE	34774
5000U	UG/KG	1,4-DICHLOROBENZENE	34779
5000U	UG/KG	1,2-DICHLOROBENZENE	34784
5000U	UG/KG	1,3-DICHLOROBENZENE	34789
5000U	UG/KG	1,4-DICHLOROBENZENE	34794
5000U	UG/KG	1,2-DICHLOROBENZENE	34799
5000U	UG/KG	1,3-DICHLOROBENZENE	34804
5000U	UG/KG	1,4-DICHLOROBENZENE	34809
5000U	UG/KG	1,2-DICHLOROBENZENE	34814
5000U	UG/KG	1,3-DICHLOROBENZENE	34819
5000U	UG/KG	1,4-DICHLOROBENZENE	34824
5000U	UG/KG	1,2-DICHLOROBENZENE	34829
5000U	UG/KG	1,3-DICHLOROBENZENE	34834
5000U	UG/KG	1,4-DICHLOROBENZENE	34839
5000U	UG/KG	1,2-DICHLOROBENZENE	34844
5000U	UG/KG	1,3-DICHLOROBENZENE	34849
5000U	UG/KG	1,4-DICHLOROBENZENE	34854
5000U	UG/KG	1,2-DICHLOROBENZENE	34859
5000U	UG/KG	1,3-DICHLOROBENZENE	34864
5000U	UG/KG	1,4-DICHLOROBENZENE	34869
5000U	UG/KG	1,2-DICHLOROBENZENE	34874

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, HFC IV
ATHENS GEORGIA

01/18/84

EXTRACTABLE ORGANIC ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 84C 415 SAMPLE TYPE: SOIL

PROJECT NO.: R4-017 PROGRAM ELEMENT: MSE
SOURCE: PLAYWY GOUNDS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION 1: 22-1(3) COMPOSITE OF SOIL SEEP DRAINAGE BASIN
STORE: 511/100 001

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1520
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST:
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TMB DATA VERIFIED BY:

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	141 UG/KG	COMPOUND NAME
1200000		BENZUIC ACID
50000		DICHLOROTOLUENE
50000		TRICHLOROTOLUENE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *AI-INTERFERENCES
*I-ESTIMATED VALUE *P-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-UNKNOWN VALUE ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-RSD/RFC IV
ATLANTA, GEORGIA

12/09/83 PESTICIDES/PCBIS AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO. 84C 411 SAMPLE TYPE: SOIL

PROJECT NO. 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTAHOOCHEE STATE: TN

STATION 1 D 1 PW-4C CONTROL SOIL SAMPLE APP. 30' BEHIND RESTROOM.
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1230
STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE METHOD: DATE/TIME 11/22/83 1425 REC'D BY: D COLCLOUITT
RELEAS: YES

CHEMIST: HLR
ANALYTICAL METHOD:

REMARKS:

SAMPLE LOG VERIFIED BY: TRB DATA VERIFIED BY: HLR

REMARKS:

FOOTNOTES
1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS.
2. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STOWET
60	UG/KG	ALDRIN	39411
60	UG/KG	HEPTACHLOR	39441
60	UG/KG	HEPTACHLOR EPOXIDE	39407
60	UG/KG	ALPHA-BHC	39427
60	UG/KG	BETA-BHC	39434
60	UG/KG	GAMMA-BHC (LINDANE)	39426
60	UG/KG	DELTA-BHC	39416
60	UG/KG	ENDOSULFAN I (ALPHA)	39411
60	UG/KG	ENDOSULFAN II (BETA)	39401
60	UG/KG	DIENDRIAN	39411
60	UG/KG	4,4'-DDT (P,P'-DDT)	39411
60	UG/KG	4,4'-DDE (P,P'-DDE)	39411
60	UG/KG	4,4'-DDD (P,P'-DDD)	39411
60	UG/KG	ENDOSULFAN I (ALPHA)	39411
60	UG/KG	ENDOSULFAN II (BETA)	39411
60	UG/KG	CHLORDANE	39411
60	UG/KG	CHLORDANE (TECHNICAL MIXTURE)	39411
60	UG/KG	PCB-1242 (AROCLOH 1242)	39411
60	UG/KG	PCB-1254 (AROCLOH 1254)	39411
60	UG/KG	PCB-1221 (AROCLOH 1221)	39411
60	UG/KG	PCB-1232 (AROCLOH 1232)	39411
60	UG/KG	PCB-1248 (AROCLOH 1248)	39411
60	UG/KG	PCB-1260 (AROCLOH 1260)	39411
60	UG/KG	PCB-1016 (AROCLOH 1016)	39411
60	UG/KG	TUAPHENE	39411
60	UG/KG	ENDRIAN ALDEHYDE	39411
60	UG/KG	2,3,7,7-TCDD (DIOXIN)	39411
60	UG/KG	CHLORDANE	39411
60	UG/KG	ALPHA-CHLORDANE	39411
60	UG/KG	GAMMA-CHLORDANE	39411
60	UG/KG	TRANS-NOMACHLOR	39411
60	UG/KG	CIS-NOMACHLOR	39411
60	UG/KG	METHOXYCHLOR	39411
60	UG/KG	MOISTURE	39411

EPA-FSD, REG IV
ATHENS, GEORGIA

DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO. 1 84C 412 SAMPLE TYPE 1 801L

PROJECT NO.: 94-017 PROGRAM ELEMENT: NSF
SOURCE: FIVE WOODS PLAYGROUND
CITY: CHATTANOUGA STATE: TN

STATION 10) : PM-3 COMPOSITE OF PLAYGROUND SURFACE SOIL
STORED STATION NO1

SAMPLE	COLLECTION	START	DATE/TIME	1245
SAMPLE	COLLECTION	STOP	DATE/TIME	1310

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLBOURITT
SEALED: YFS

CHEMIST: HUP ANALYTICAL METHODS

REMARKS

SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: HLR

РЕМАНС

ANALYTICAL RESULTS

RESULTS	UNITS	COMPUND
9U	UG/KG	ALDRIN
9U	UG/KG	HEPTACHLOR
9U	UG/KG	HEPTACHLOR EPOXIDE
9U	UG/KG	ALPHA-BHC
9U	UG/KG	BETA-BHC
9U	UG/KG	GAMMA-HHC (LINDANE)
9U	UG/KG	DELTA-HHC
9U	UG/KG	EMUSULFAN I (ALPHA)
9U	UG/KG	DIELDRIN
10U	UG/KG	4'-I-DNT (P,P'-DDTI)
10U	UG/KG	4'-DDE (P,P'-DDE)
10U	UG/KG	4'-DND (P,P'-DDD)
10U	UG/KG	ENDRIN
10U	UG/KG	EMUSULFAN II (BETA)
10U	UG/KG	CHLORDANE (TECH MIXTURE)
10U	UG/KG	PCB-12542 (AROC-LOR 12542)
100U	UG/KG	PCB-12571 (AROC-LOR 12571)
100U	UG/KG	PCB-12742 (AROC-LOR 12742)
100U	UG/KG	PCB-12648 (AROC-LOR 12648)
100U	UG/KG	PCB-12616 (AROC-LOR 12616)
100U	UG/KG	TOXAPHENE
10U	UG/KG	ENDRIN ALDEHYDE
NA	UG/KG	2,3,7,8 TCDD(DIOXIN)
---	UG/KG	CHLOROBENZENE /2
---	UG/KG	ALPHA-CHLOROBENZENE /2
---	UG/KG	GAMA-CHLOROBENZENE /2
---	UG/KG	1-HYDROXYCHLOROBENZENE /2
---	UG/KG	GAMA-CHLORODANE /2
---	UG/KG	TRANS-NONACHLOR /2
---	UG/KG	ALPHA-CHLORODANE /2
---	UG/KG	CIS-NONACHLOR /2
---	UG/KG	METHOXYCHLOR /2
---	UG/KG	MOLIBDURE

FOOTNOTES
 1-AVERAGE VALUE
 2-MAXIMUM VALUE
 *NA-NOT ANALYZED *NAI-INTERFERENCE OF MATERIAL
 *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL

[illegible]

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
 PPA-2500 REG IV
 ATHENS GEORGIA

12/09/83 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
 DATA REPORTING SHEET
 SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO. 1 RAC 413 SAMPLE TYPE: SEDIM

PROJECT NO. 1 W4-017 PROGRAM ELEMENT: NSF
 SOURCE: PINEY WOODS PLAYGROUND
 CITY: CHATTANOOGA STATE: TN

STATION 1 D 1 P-2(0) APP 100' DOWNGRADIANT OF SEEP MANHOLE
 H/O RET STATION NO. 1

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1425
 SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
 SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLOUETT
 SEALED: YES

CHEMIST: HLR
 ANALYTICAL METHOD: 1

REMARKS:
 REMARKS:

SAMPLE LUG VERIFIED BY: TBR DATA VERIFIED BY: HLR

REMARKS

****ANALYTICAL RESULTS****

RESULTS	UNITS	COMPOUND	STOR
200	UG/KG	ALDRIN	3941
200	UG/KG	HEPTACHLOR EPOXIDE	3941
200	UG/KG	HEPTACHLOR	3941
200	UG/KG	ALPHA-HCH	3900
200	UG/KG	BETA-HCH	3422
200	UG/KG	GAMMA-HCH (LINDANE)	3911
200	UG/KG	DELTA-HCH	3422
200	UG/KG	ENDOSULFAN I (ALPHA)	3911
200	UG/KG	ENDOSULFAN II (BETA)	3911
100	UG/KG	DIELDRIN (P,P'-DDT)	3911
100	UG/KG	4,4'-DDE (P,P'-DDE)	3911
100	UG/KG	4,4'-DDD (P,P'-DDD)	3911
100	UG/KG	ENDOSULFAN I (ALPHA)	3911
100	UG/KG	ENDOSULFAN II (BETA)	3911
100	UG/KG	ENDOSULFAN SULFATE	3911
1000	UG/KG	CHLORDANE (TECH MIXTURE)	3911
2000	UG/KG	PCB-1242 (AROCOR 1242)	3950
2000	UG/KG	PCB-1254 (AROCOR 1254)	3950
2000	UG/KG	PCB-1221 (AROCOR 1221)	3950
2000	UG/KG	PCB-1232 (AROCOR 1232)	3950
2000	UG/KG	PCB-1248 (AROCOR 1248)	3950
2000	UG/KG	PCB-1260 (AROCOR 1260)	3950
2000	UG/KG	PCB-1016 (AROCOR 1016)	3950
2000	UG/KG	TOXAPHENE	3950
100	UG/KG	ENDOSULFAN ALDEHYDE	3950
NA	UG/KG	ENDOSULFAN SULFATE	3950
NA	UG/KG	CHLORDANE 3,7,7-TCDD(DIOXIN)	3950
NA	UG/KG	ALPHA-CHLORDANE /2	3950
NA	UG/KG	GAMMA-CHLORDANE /2	3950
NA	UG/KG	1-HYDROXYCHLORDANE /2	3950
NA	UG/KG	GAMMA-CHLORDANE /2	3950
NA	UG/KG	TRANS-NONACHLORANE /2	3950
NA	UG/KG	ALPHA-CHLORDANE /2	3950
NA	UG/KG	CIS-NONACHLORANE /2	3950
500	UG/KG	METHOXYCHLOR	3950
49	UG/KG	METHOXYCHLOR	3950

 FOOTNOTES
 *A-APPRAISAL VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
 *EXTRATED VALUE *N-PRESUMED EVIDENCE OF PRESENCE OF MATERIAL

12/09/83 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

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SOURCE: 001 84-017 PROGRAM ELEMENT: NSF
SOURCE: PIERRE MOUNTAINS PLATEAU STUDY IN
CITY: CHARLOTTE
STATION: 1-0-1 P-1(0) COMPOSITE OF SOIL SEEP DRAINAGE BASIN
STORED STATION NO:
SAMPLE COLLECTION: START DATE/TIME 11/21/83 1520
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00
COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425
SEALED: YRS

```

REMARK:
REMARK:
SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: HLR
TERESA FLORES

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**FOOTNOTES**
A-AVERAGE VALUE
B-BEST ESTIMATE OF VALUE
C-CORRECTION FACTOR
D-DEVIATION FACTOR
E-ERROR FACTOR
F-FACTOR
G-GRADE
H-HANDLING
I-IDENTIFICATION
J-JOB
K-KIND OF MATERIAL
L-LOADING
M-MATERIAL
N-NUMBER OF TESTS
O-OBSERVATIONS
P-OTHER
Q-QUALITY
R-RANGE
S-SAMPLE
T-TEST
U-UNIT
V-VELOCITY
W-WEIGHT
X-WEATHER
Y-YEAR
Z-ZONE
*****

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RESULTS	UNITS	COMPOUND
300U	UG/KG	ALDRIN
300U	UG/KG	HEPTACHLOR
300U	UG/KG	HEPTACHLOR EPOXIDE
300U	UG/KG	ALPHA-BHC
300U	UG/KG	BETA-BHC
300U	UG/KG	GAMA-BHC (LINDANE)
300U	UG/KG	DELTA-BHC
300U	UG/KG	ENDOSULFAN I (ALPHA)
300U	UG/KG	ENDOSULFAN II (BETA)
300U	UG/KG	4,4'-DDT
300U	UG/KG	4,4'-DDE
300U	UG/KG	4,4'-DDD
300U	UG/KG	ENDRIN
300U	UG/KG	ENDOSULFAN I (BETA)
300U	UG/KG	ENDOSULFAN SULFATE
300U	UG/KG	CHLORDANE (TECH MIXTURE)
300U	UG/KG	PCB-1242
300U	UG/KG	PCB-1231
300U	UG/KG	PCB-1232
300U	UG/KG	PCB-1233
300U	UG/KG	PCB-1246
300U	UG/KG	PCB-1248
300U	UG/KG	PCB-1016
300U	UG/KG	TOXAPHENE
300U	UG/KG	ENDRIN ALDEHYDE
300U	UG/KG	2,3,7,8 TCDD (DUXIN)
300U	UG/KG	CHLORDANE /2
300U	UG/KG	ALDRIN
300U	UG/KG	CHLORDANE
300U	UG/KG	1-HYDROXYCHLORDANE
300U	UG/KG	GAMA-CHLORDANE
300U	UG/KG	TRANS-NONACHLOR
300U	UG/KG	ALPHA-CHLORDANE
300U	UG/KG	CIS-NONACHLOR
300U	UG/KG	METOMYXCHLOR
300U	UG/KG	MOISTURE

01/16/44

SAMPLE NO.: 84C 413 SAMPLE TYPE: SEDIM

RESULTS	101 UG/KG	COMPOUND NAME
570000		BENZOTIC ACID
50000		DICHLOROTOLUENE
50000		TRICHLOROETHYLENE

STATION 1.0: P+2(0) APP 100' DRAIN GRADIENT OF SEEP MANHOLE
STREET STATION: 401

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/93 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST:
ANALYTICAL METHOD:

REMARKS
REMARKS

SAMPLE LOG VERIFIED BY: TDD DATA VERIFIED BY: CHH

HEPARAS

 00=AVRAGE VALUE 01=NOT ANALYZED 02=INTERFERENCES
 03=ESTIMATED VALUE 04=PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
 05=ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
 06=ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
 07=MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS

EPA-FSD, REG. IV
ATHENS, GEORGIA

EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE TYPE: SEDIMENT

STATE, TN

DOWNGRADIENT OF SLEEP MANHOLE

TE/TIME 11/21/83 1423
TE/TIME 00/00/00

REC'D BY D COLBOUTT
1425
822/83

DATA VERIFIED BY: CHH

NOT ANALYZED. ANAL-INFERENCES
PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
TO BE LESS THAN VALUE GIVEN
TO BE GREATER THAN VALUE GIVEN
THE NUMBER IS

●●●●●

RESULTS	UNITS	COMPOUND	FORM
NA	UG/KG	N-NITROSODIMETHYLAMINE	3444
NA	UG/KG	N-NITROETHYLHYDRAZINE/AZOBENZENE	3443
NA	UG/KG	1,2-DIPICRYLHYDRAZINE/AZOBENZENE	3442
5000U	UG/KG	BENZIDAN	3441
5000U	UG/KG	1,3-DICHLOROBENZENE	3440
5000U	UG/KG	1,4-DICHLOROBENZENE	3439
5000U	UG/KG	1,2-DICHLOROBENZENE	3438
5000U	UG/KG	BIS(2-CHLOROETHYL) ETHER	3437
5000U	UG/KG	HEXACHLOROCYCLOHEXANE	3436
5000U	UG/KG	1,2,4-TRICHLOROBENZENE	3435
5000U	UG/KG	NAPHTHALENE	3434
5000U	UG/KG	BIS(2-CHLOROETHOXY) METHANE	3433
5000U	UG/KG	ISOPHORBNE	3432
5000U	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	3431
5000U	UG/KG	2-CHLORONAPHTHALENE	3430
5000U	UG/KG	ACENAPHTHENE	3429
5000U	UG/KG	DIEETHYL PHTHALATE	3428
5000U	UG/KG	2,4-DINITROTOLUENE	3427
5000U	UG/KG	2,6-DINITROTOLUENE	3426
5000U	UG/KG	4-CHLOROPHENYL PHENYL ETHER	3425
5000U	UG/KG	FLINDENE	3424
5000U	UG/KG	DIEETHYL PHTHALATE	3423
5000U	UG/KG	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE	3422
5000U	UG/KG	HEXACHLOROBENZENE (HCB)	3421
5000U	UG/KG	4-HYDROPHENYL PHENYL ETHER	3420
5000U	UG/KG	PHENANTHRENE	3419
5000U	UG/KG	ANTHRACENE	3418
5000U	UG/KG	DI-N-BUTYL PHTHALATE	3417
5000U	UG/KG	FLUORANTHENE	3416
5000U	UG/KG	PYRENE	3415
5000U	UG/KG	BENZYL BUTYL PHTHALATE	3414
5000U	UG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	3413
5000U	UG/KG	BENZOTRIANTRACENE	3412
5000U	UG/KG	CHRISSENE	3411
5000U	UG/KG	3,3'-DICHLOROBENZIDINE	3410
5000U	UG/KG	DI-N-DECYL PHTHALATE	3409
5000U	UG/KG	BENZOTRIANTRACENE	3408
5000U	UG/KG	BENZOTRIANTRACENE	3407
5000U	UG/KG	BENZOTRIANTRACENE	3406
5000U	UG/KG	BENZOTRIANTRACENE	3405
5000U	UG/KG	BENZOTRIANTRACENE	3404
5000U	UG/KG	BENZOTRIANTRACENE	3403
5000U	UG/KG	BENZOTRIANTRACENE	3402
5000U	UG/KG	BENZOTRIANTRACENE	3401
5000U	UG/KG	BENZOTRIANTRACENE	3400
5000U	UG/KG	BENZOTRIANTRACENE	3399
5000U	UG/KG	BENZOTRIANTRACENE	3398
5000U	UG/KG	BENZOTRIANTRACENE	3397
5000U	UG/KG	BENZOTRIANTRACENE	3396
5000U	UG/KG	BENZOTRIANTRACENE	3395
5000U	UG/KG	BENZOTRIANTRACENE	3394
5000U	UG/KG	BENZOTRIANTRACENE	3393
5000U	UG/KG	BENZOTRIANTRACENE	3392
5000U	UG/KG	BENZOTRIANTRACENE	3391
5000U	UG/KG	BENZOTRIANTRACENE	3390
5000U	UG/KG	BENZOTRIANTRACENE	3389
5000U	UG/KG	BENZOTRIANTRACENE	3388
5000U	UG/KG	BENZOTRIANTRACENE	3387
5000U	UG/KG	BENZOTRIANTRACENE	3386
5000U	UG/KG	BENZOTRIANTRACENE	3385
5000U	UG/KG	BENZOTRIANTRACENE	3384
5000U	UG/KG	BENZOTRIANTRACENE	3383
5000U	UG/KG	BENZOTRIANTRACENE	3382
5000U	UG/KG	BENZOTRIANTRACENE	3381
5000U	UG/KG	BENZOTRIANTRACENE	3380
5000U	UG/KG	BENZOTRIANTRACENE	3379
5000U	UG/KG	BENZOTRIANTRACENE	3378
5000U	UG/KG	BENZOTRIANTRACENE	3377
5000U	UG/KG	BENZOTRIANTRACENE	3376
5000U	UG/KG	BENZOTRIANTRACENE	3375
5000U	UG/KG	BENZOTRIANTRACENE	3374
5000U	UG/KG	BENZOTRIANTRACENE	3373
5000U	UG/KG	BENZOTRIANTRACENE	3372
5000U	UG/KG	BENZOTRIANTRACENE	3371
5000U	UG/KG	BENZOTRIANTRACENE	3370
5000U	UG/KG	BENZOTRIANTRACENE	3369
5000U	UG/KG	BENZOTRIANTRACENE	3368
5000U	UG/KG	BENZOTRIANTRACENE	3367
5000U	UG/KG	BENZOTRIANTRACENE	3366
5000U	UG/KG	BENZOTRIANTRACENE	3365
5000U	UG/KG	BENZOTRIANTRACENE	3364
5000U	UG/KG	BENZOTRIANTRACENE	3363
5000U	UG/KG	BENZOTRIANTRACENE	3362
5000U	UG/KG	BENZOTRIANTRACENE	3361
5000U	UG/KG	BENZOTRIANTRACENE	3360
5000U	UG/KG	BENZOTRIANTRACENE	3359
5000U	UG/KG	BENZOTRIANTRACENE	3358
5000U	UG/KG	BENZOTRIANTRACENE	3357
5000U	UG/KG	BENZOTRIANTRACENE	3356
5000U	UG/KG	BENZOTRIANTRACENE	3355
5000U	UG/KG	BENZOTRIANTRACENE	3354
5000U	UG/KG	BENZOTRIANTRACENE	3353
5000U	UG/KG	BENZOTRIANTRACENE	3352
5000U	UG/KG	BENZOTRIANTRACENE	3351
5000U	UG/KG	BENZOTRIANTRACENE	3350
5000U	UG/KG	BENZOTRIANTRACENE	3349
5000U	UG/KG	BENZOTRIANTRACENE	3348
5000U	UG/KG	BENZOTRIANTRACENE	3347
5000U	UG/KG	BENZOTRIANTRACENE	3346
5000U	UG/KG	BENZOTRIANTRACENE	3345
5000U	UG/KG	BENZOTRIANTRACENE	3344
5000U	UG/KG	BENZOTRIANTRACENE	3343
5000U	UG/KG	BENZOTRIANTRACENE	3342
5000U	UG/KG	BENZOTRIANTRACENE	3341
5000U	UG/KG	BENZOTRIANTRACENE	3340
5000U	UG/KG	BENZOTRIANTRACENE	3339
5000U	UG/KG	BENZOTRIANTRACENE	3338
5000U	UG/KG	BENZOTRIANTRACENE	3337
5000U	UG/KG	BENZOTRIANTRACENE	3336
5000U	UG/KG	BENZOTRIANTRACENE	3335
5000U	UG/KG	BENZOTRIANTRACENE	3334
5000U	UG/KG	BENZOTRIANTRACENE	3333
5000U	UG/KG	BENZOTRIANTRACENE	3332
5000U	UG/KG	BENZOTRIANTRACENE	3331
5000U	UG/KG	BENZOTRIANTRACENE	3330
5000U	UG/KG	BENZOTRIANTRACENE	3329
5000U	UG/KG	BENZOTRIANTRACENE	3328
5000U	UG/KG	BENZOTRIANTRACENE	3327
5000U	UG/KG	BENZOTRIANTRACENE	3326
5000U	UG/KG	BENZOTRIANTRACENE	3325
5000U	UG/KG	BENZOTRIANTRACENE	3324
5000U	UG/KG	BENZOTRIANTRACENE	3323
5000U	UG/KG	BENZOTRIANTRACENE	3322
5000U	UG/KG	BENZOTRIANTRACENE	3321
5000U	UG/KG	BENZOTRIANTRACENE	3320
5000U	UG/KG	BENZOTRIANTRACENE	3319
5000U	UG/KG	BENZOTRIANTRACENE	3318
5000U	UG/KG	BENZOTRIANTRACENE	3317
5000U	UG/KG	BENZOTRIANTRACENE	3316
5000U	UG/KG	BENZOTRIANTRACENE	3315
5000U	UG/KG	BENZOTRIANTRACENE	3314
5000U	UG/KG	BENZOTRIANTRACENE	3313
5000U	UG/KG	BENZOTRIANTRACENE	3312
5000U	UG/KG	BENZOTRIANTRACENE	3311
5000U	UG/KG	BENZOTRIANTRACENE	3310
5000U	UG/KG	BENZOTRIANTRACENE	3309
5000U	UG/KG	BENZOTRIANTRACENE	3308
5000U	UG/KG	BENZOTRIANTRACENE	3307
5000U	UG/KG	BENZOTRIANTRACENE	3306
5000U	UG/KG	BENZOTRIANTRACENE	3305
5000U	UG/KG	BENZOTRIANTRACENE	3304
5000U	UG/KG	BENZOTRIANTRACENE	3303
5000U	UG/KG	BENZOTRIANTRACENE	3302
5000U	UG/KG	BENZOTRIANTRACENE	3301
5000U	UG/KG	BENZOTRIANTRACENE	3300
5000U	UG/KG	BENZOTRIANTRACENE	3299
5000U	UG/KG	BENZOTRIANTRACENE	3298
5000U	UG/KG	BENZOTRIANTRACENE	3297
5000U	UG/KG	BENZOTRIANTRACENE	3296
5000U	UG/KG	BENZOTRIANTRACENE	3295
5000U	UG/KG	BENZOTRIANTRACENE	3294
5000U	UG/KG	BENZOTRIANTRACENE	3293
5000U	UG/KG	BENZOTRIANTRACENE	3292
5000U	UG/KG	BENZOTRIANTRACENE	3291
5000U	UG/KG	BENZOTRIANTRACENE	3290
5000U	UG/KG	BENZOTRIANTRACENE	3289
5000U	UG/KG	BENZOTRIANTRACENE	3288
5000U	UG/KG	BENZOTRIANTRACENE	3287
5000U	UG/KG	BENZOTRIANTRACENE	3286
5000U	UG/KG	BENZOTRIANTRACENE	3285
5000U	UG/KG	BENZOTRIANTRACENE	3284
5000U	UG/KG	BENZOTRIANTRACENE	3283
5000U	UG/KG	BENZOTRIANTRACENE	3282
5000U	UG/KG	BENZOTRIANTRACENE	3281
5000U	UG/KG	BENZOTRIANTRACENE	3280
5000U	UG/KG	BENZOTRIANTRACENE	3279
5000U	UG/KG	BENZOTRIANTRACENE	3278
5000U	UG/KG	BENZOTRIANTRACENE	3277
5000U	UG/KG	BENZOTRIANTRACENE	3276
5000U	UG/KG	BENZOTRIANTRACENE	3275
5000U	UG/KG	BENZOTRIANTRACENE	3274
5000U	UG/KG	BENZOTRIANTRACENE	3273
5000U	UG/KG	BENZOTRIANTRACENE	3272
5000U	UG/KG	BENZOTRIANTRACENE	3271
5000U	UG/KG	BENZOTRIANTRACENE	3270
5000U	UG/KG	BENZOTRIANTRACENE	3269
5000U	UG/KG	BENZOTRIANTRACENE	3268
5000U	UG/KG	BENZOTRIANTRACENE	3267
5000U	UG/KG	BENZOTRIANTRACENE	3266
5000U	UG/KG	BENZOTRIANTRACENE	3265
5000U	UG/KG	BENZOTRIANTRACENE	3264
5000U	UG/KG	BENZOTRIANTRACENE	3263
5000U	UG/KG	BENZOTRIANTRACENE	3262
5000U	UG/KG	BENZOTRIANTRACENE	3261
5000U	UG/KG	BENZOTRIANTRACENE	3260
5000U	UG/KG	BENZOTRIANTRACENE	3259
5000U	UG/KG	BENZOTRIANTRACENE	3258
5000U	UG/KG	BENZOTRIANTRACENE	3257
5000U	UG/KG	BENZOTRIANTRACENE	3256
5000U	UG/KG	BENZOTRIANTRACENE	3255
5000U	UG/KG	BENZOTRIANTRACENE	3254
5000U	UG/KG	BENZOTRIANTRACENE	3253
5000U	UG/KG	BENZOTRIANTRACENE	3252
5000U	UG/KG	BENZOTRIANTRACENE	3251
5000U	UG/KG	BENZOTRIANTRACENE	3250
5000U	UG/KG	BENZOTRIANTRACENE	3249
5000U	UG/KG	BENZOTRIANTRACENE	3248
5000U	UG/KG	BENZOTRIANTRACENE	3247
5000U	UG/KG	BENZOTRIANTRACENE	3246
5000U	UG/KG	BENZOTRIANTRACENE	3245
5000U	UG/KG	BENZOTRIANTRACENE	3244
5000U	UG/KG	BENZOTRIANTRACENE	3243
5000U	UG/KG	BENZOTRIANTRACENE	3242
5000U	UG/KG	BENZOTRIANTRACENE	3241
5000U	UG/KG	BENZOTRIANTRACENE	3240
5000U	UG/KG	BENZOTRIANTRACENE	3239
5000U	UG/KG	BENZOTRIANTRACENE	3238
5000U	UG/KG	BENZOTRIANTRACENE	3237
5000U	UG/KG	BENZOTRIANTRACENE	3236
5000U	UG/KG	BENZOTRIANTRACENE	3235
5000U	UG/KG	BENZOTRIANTRACENE	3234
5000U	UG/KG	BENZOTRIANTRACENE	3233
5000U	UG/KG	BENZOTRIANTRACENE	3232
5000U	UG/KG	BENZOTRIANTRACENE	3231
5000U	UG/KG	BENZOTRIANTRACENE	3230
5000U	UG/KG	BENZOTRIANTRACENE	3229
5000U	UG/KG	BENZOTRIANTRACENE	3228
5000U	UG/KG	BENZOTRIANTRACENE	3227
5000U	UG/KG	BENZOTRIANTRACENE	3226
5000U	UG/KG	BENZOTRIANTRACENE	3225
5000U	UG/KG	BENZOTRIANTRACENE	3224
5000U	UG/KG	BENZOTRIANTRACENE	3223
5000U	UG/KG	BENZOTRIANTRACENE	3222
5000U	UG/KG	BENZOTRIANTRACENE	3221
5000U	UG/KG	BENZOTRIANTRACENE	3220
5000U	UG/KG	BENZOTRIANTRACENE	3219
5000U	UG/KG	BENZOTRIANTRACENE	3218
5000U	UG/KG	BENZOTRIANTRACENE	3217
5000U	UG/KG	BENZOTRIANTRACENE	3216
5000U	UG/KG	BENZOTRIANTRACENE	3215
5000U	UG/KG	BENZOTRIANTRACENE	3214
5000U	UG/KG	BENZOTRIANTRACENE	3213
5000U	UG/KG	BENZOTRIANTRACENE	3212
5000U	UG/KG	BENZOTRIANTRACENE	3211
5000U	UG/KG	BENZOTRIANTRACENE	3210
5000U	UG/KG	BENZOTRIANTRACENE	3209
5000U	UG/KG	BENZOTRIANTRACENE	3208
5000U	UG/KG	BENZOTRIANTRACENE	3207
5000U	UG/KG	BENZOTRIANTRACENE	3206
5000U	UG/KG	BENZOTRIANTRACENE	3205
5000U	UG/KG	BENZOTRIANTRACENE	3204
5000U	UG/KG	BENZOTRIANTRACENE	3203
5000U	UG/KG	BENZOTRIANTRACENE	3202
5000U	UG/KG	BENZOTRIANTRACENE	3201
5000U	UG/KG	BENZOTRIANTRACENE	3200
5000U	UG/KG	BENZOTRIANTRACENE	3199
5000U	UG/KG	BENZOTRIANTRACENE	3198
5000U	UG/KG	BENZOTRIANTRACENE	3197
5000U	UG/KG	BENZOTRIANTRACENE	3196
5000U	UG/KG	BENZOTRIANTRACENE	3195
5000U	UG/KG	BENZOTRIANTRACENE	3194
5000U	UG/KG	BENZOTRIANTRACENE	3193
5000U	UG/KG	BENZOTRIANTRACENE	3192
5000U	UG/KG	BENZOTRIANTRACENE	3191
5000U	UG/KG	BENZOTRIANTRACENE	3190
5000U	UG/KG	BENZOTRIANTRACENE	3189
5000U	UG/KG	BENZOTRIANTRACENE	3188
5000U	UG/KG	BENZOTRIANTRACENE	3187
5000U	UG/KG	BENZOTRIANTRACENE	3186
5000U	UG/KG	BENZOTRIANTRACENE	3185
5000U	UG/KG	BENZOTRIANTRACENE	3184
5000U	UG/KG	BENZOTRIANTRACENE	3183
5000U	UG/KG	BENZOTRIANTRACENE	3182
5000U	UG/KG	BENZOTRIANTRACENE	3181
5000U	UG/KG	BENZOTRIANTRACENE	3180
5000U	UG/KG	BENZOTRIANTRACENE	3179
5000U	UG/KG	BENZOTRIANTRACENE	3178
5000U	UG/KG	BENZOTRIANTRACENE	3177
5000U	UG/KG	BENZOTRIANTRACENE	3176
5000U	UG/KG	BENZOTRIANTRACENE	3175
5000U	UG/KG	BENZOTRIANTRACENE	3174
5000U	UG/KG	BENZOTRIANTRACENE	3173
5000U	UG/KG	BENZOTRIANTRACENE	3172
5000U	UG/KG	BENZOTRIANTRACENE	3171
5000U	UG/KG	BENZOTRIANTRACENE	3170
5000U	UG/KG	BENZOTRIANTRACENE	3169
5000U	UG/KG	BENZOTRIANTRACENE	3168
5000U	UG/KG	BENZOTRIANTRACENE	3167
5000U	UG/KG	BENZOTRIANTRACENE	3166
5000U	UG/KG	BENZOTRIANTRACENE	3165
5000U	UG/KG	BENZOTRIANTRACENE	3164
5000U	UG/KG	BENZOTRIANTRACENE	3163
5000U	UG/KG	BENZOTRIANTRACENE	3162
5000U	UG/KG	BENZOTRIANTRACENE	3161
5000U	UG/KG	BENZOTRIANTRACENE	3160
5000U	UG/KG	BENZOTRI	

RESULTS	UNITS	COMPOUND	ST/MT
NA	UG/KG	N-NITROSDI(METHYLAMINE)	34491
NA	UG/KG	1,2-DIPHENYLHYDRAZINE/AZO BENZENE	34494
5000U	UG/KG	RENZIDINE	34501
5000U	UG/KG	1,3-DICHLOROBENZENE	34504
5000U	UG/KG	1,4-DICHLOROBENZENE	34509
5000U	UG/KG	1,2-DICHLOROBENZENE	34516
5000U	UG/KG	HIS(2-CHLOROETHYL) ETHER	34519
5000U	UG/KG	HEXACHLOROETHANE	34524
5000U	UG/KG	HIS(2-CHLOROISOPROPYL) ETHER	34529
5000U	UG/KG	N-NITROSDI-N-PROPYLAMINE	34531
5000U	UG/KG	NITROBENZENE	34534
5000U	UG/KG	HEXACHLOROCYCLOPENTADIENE	34539
5000U	UG/KG	1,2,4-TRICHLOROBENZENE	34544
5000U	UG/KG	NAPHTHALENE	34549
5000U	UG/KG	HIS(2-CHLOROETHOXY) METHANE	34554
5000U	UG/KG	ISOPHTHALIC ACID	34559
5000U	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	34564
5000U	UG/KG	2-CHLORONAPHTHALENE	34569
5000U	UG/KG	ACENAPHTHENE	34574
5000U	UG/KG	2,4-DIMETHYL PHTHALATE	34579
5000U	UG/KG	2,4-DINITROBENZENE	34584
5000U	UG/KG	2,6-DINITROBENZENE	34589
5000U	UG/KG	4-CHLOROPHENYL PHENYL ETHER	34594
5000U	UG/KG	FLUORENE	34599
5000U	UG/KG	DIFETHYL PHTHALATE	34604
5000U	UG/KG	N-NITROSDIPHENYLAMINE/DIPHENYLAMINE	34609
5000U	UG/KG	HEXACHLOROBENZENE (HCB)	34614
5000U	UG/KG	4-BROMODIPHENYL PHENYL ETHER	34619
5000U	UG/KG	PHENANTHRENE	34624
5000U	UG/KG	ANTHRACENE	34629
5000U	UG/KG	DI-N-NUTLYLPHTHALATE	34634
5000U	UG/KG	FLUORANTHENE	34639
5000U	UG/KG	PIRENE	34644
5000U	UG/KG	HEXYL BUTYL PHTHALATE	34649
5000U	UG/KG	HIS(2-ETHYLHEXYL) PHTHALATE	34654
5000U	UG/KG	HEXAZO(A)ANTHRACENE	34659
5000U	UG/KG	CHRYSENE	34664
5000U	UG/KG	3,3'-DICHLORODIMETHYLIDINE	34669
5000U	UG/KG	N-OCYLPHTHALATE	34674
5000U	UG/KG	HEXAZO(B)FLUORANTHENE	34679
5000U	UG/KG	HEXAZO(C)FLUORANTHENE	34684
5000U	UG/KG	HEXAZO(A)-PYRENE	34689
5000U	UG/KG	INDENO(1,2,3-CD) PYRENE	34694
5000U	UG/KG	DIMETHYL PHTHALATE	34699
5000U	UG/KG	HENZO(GH)ANTHRACENE	34704
5000U	UG/KG	2-CHLOROPHENOL	34709
5000U	UG/KG	2-NITROPHENOL	34714
5000U	UG/KG	PHENOL	34719
5000U	UG/KG	2,4-DIMETHYLPHENOL	34724
5000U	UG/KG	2,4-DICHLOROPHENOL	34729
5000U	UG/KG	2,4-DINITROPHENOL	34734
5000U	UG/KG	2,4,6-TRICHLOROPHENOL	34739
5000U	UG/KG	4-CHLORO-3-METHYLPHENOL	34744

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-FSD, REG IV
ATLANTA, GEORGIA

01/18/84

EXTRACTABLE ORGANIC ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO. 1 R4C 411 SAMPLE TYPE: SOIL

*****ANALYTICAL RESULTS*****

RESULTS IN	UG/KG	COMPOUND NAME
430000		BENZONIC ACID
50000		DICHLORODIBENZ
50000		TRICHLORODIBENZ

PROJECT NO. 1 R4-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY MOUNTS PLAYGROUND
CITY: CHATTAHOOCHEE STATE: TN

STATION 1, D. 1 R4-4C CONTING SOIL SAMPLE APP. 30' BEHIND RESTROOM
STORED STATION 1, D. 1

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1230
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/27/83 1425 REC'D BY: D COLOVATT
SEALED: YES

CHEMIST:
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TMD DATA VERIFIED BY: CHH

REMARKS

*****FOOTNOTES*****
#A-AVERAGE VALUE #NA-OUT ANALYZED #NAI-INTERFERENCES
#J-ESTIMATED VALUE #N-PRISUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
#K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
#L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
#U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
VPA-FSD, REG IV
ATHENS GEORGIA

01/18/84

EXTRACTABLE ORGANIC ANALYSIS, MISC
DATA REPORTING SHEET
WATER

SAMPLE NO.: 94C 414 SAMPLE TYPE: LEACH

*****ANALYTICAL RESULTS*****

RESULTS	IN: MG/L	COMPOUND NAME
10000		BENZONIC ACID
100		DICHLOROTOLUENE
100		TRICHLOROTOLUENE

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION I.D.: P-25* APP. 100' DOWNGRADIENT OF SEEP MANHOLE
STORET STATION: 601

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1400
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLOVITT
SEALED: YES

CHEMIST:
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TDB DATA VERIFIED BY: CHH

REMARKS

*****FOOTNOTES*****
*A-AVERAGE VALUE *JA-JUST ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*A-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*J-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*A-ACTUAL VALUE IS KNOWN TO BE NOT DETECTED. THE NUMBER IS

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, REG IV
ATHENS GEORGIA

12/09/83 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
WATER

SAMPLE NO.: 84C 414 SAMPLE TYPE: LEACH

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION 1, U.: PW-2SW APP. 100' DOWNGRADIENT OF SEEP MANHOLE
STORET STATION NUI

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1400
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: AM
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBM DATA VERIFIED BY: HLR

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
0.03U	UG/L	ALDRIN	39330
0.03U	UG/L	HEPTACHLOR	39410
0.03U	UG/L	HEPTACHLOR EPOXIDE	39420
0.03U	UG/L	ALPHA-BHC	39337
0.03U	UG/L	BETA-BHC	39338
0.03U	UG/L	GAMMA-BHC (LINDANE)	39340
0.03U	UG/L	DELTA-BHC	39259
0.008U	UG/L	ENDOSULFAN I (ALPHA)	39361
0.008U	UG/L	DIELORIN	39380
0.03U	UG/L	4,4'-DDT (P,P'-DDT)	39300
0.03U	UG/L	4,4'-DDE (P,P'-DDE)	39320
0.03U	UG/L	4,4'-DDD (P,P'-DDD)	39310
0.008U	UG/L	ENDRIN	39390
0.03U	UG/L	ENDOSULFAN II (BETA)	39356
0.009U	UG/L	ENDOSULFAN SULFATE	39351
0.06U	UG/L	CHLORDANE (TECH. MIXTURE) /1	39350
0.3U	UG/L	PCB-1242 (AROCLO 1242)	39496
0.2U	UG/L	PCB-1254 (AROCLO 1254)	39504
0.3U	UG/L	PCB-1221 (AROCLO 1221)	39488
0.3U	UG/L	PCB-1232 (AROCLO 1232)	39492
0.3U	UG/L	PCB-1248 (AROCLO 1248)	39500
0.2U	UG/L	PCB-1260 (AROCLO 1260)	39500
0.3U	UG/L	PCB-1016 (AROCLO 1016)	39487
0.4U	UG/L	TOXAPHENE	39481
0.009U	UG/L	ENDRIN ALDEHYDE	39361
NA	UG/L	2,3,7,8 TCDD (DIOXIN)	348
--	UG/L	CHLORDENE /2	774
--	UG/L	ALPHA-CHLORDENE /2	
--	UG/L	GAMMA-CHLORDENE /2	
--	UG/L	1-HYDROXYCHLORDENE /2	
--	UG/L	GAMMA-CHLORDANE /2	39810
--	UG/L	TRANS-NONACHLOR /2	39071
--	UG/L	ALPHA-CHLORDANE /2	39348
--	UG/L	CIS-NONACHLOR /2	39068
0.05U	UG/L	METHOXYCHLOR	39480

FOOTNOTES
 *A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
 *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
 *K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, REG IV
ATHENS GEORGIA

01/1/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
WATER

SAMPLE NO.: R4C 414 SAMPLE TYPE: LEACH

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTAHOOGA STATE: TN

STATION 1, U.: PW-2SW APP. 100' DOWNGRAIENT OF SEEP HANHOLE
STORE1 STATION NO1

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1400
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: FRA
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRB SAMPLE DATA VERIFIED BY: FRA

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
NA	UG/L	ACRYLONITRILE	34210
NA	UG/L	ACRYLONITRILE	34215
5U	UG/L	CHLOROMETHANE	34418
5U	UG/L	BROMOMETHANE	34419
5U	UG/L	VINYL CHLORIDE	39175
5U	UG/L	CHLOROETHANE	34311
5U	UG/L	METHYLENE CHLORIDE	34423
5U	UG/L	1,1-DICHLOROETHANE	34501
5U	UG/L	1,1-DICHLOROETHANE	34496
5U	UG/L	TRANS-1,2-DICHLOROETHENE	34546
5U	UG/L	CHLOROFORM	32106
5U	UG/L	1,2-DICHLOROETHANE	32103
5U	UG/L	1,1,1-TRICHLOROETHANE	34506
5U	UG/L	CARBON TETRACHLORIDE	32102
5U	UG/L	BROMODICHLOROMETHANE	32101
5U	UG/L	1,2-DICHLOROPROPANE	34541
5U	UG/L	TRANS-1,3-DICHLOROPROPENE	34699
5U	UG/L	TRICHLOROETHENE	39180
5U	UG/L	BENZENE	74124
5U	UG/L	DIBROMODICHLOROMETHANE	34306
5U	UG/L	1,1,2-TRICHLOROETHANE	34511
5U	UG/L	CIS-1,3-DICHLOROPROPENE	34704
5U	UG/L	2-CHLOROETHYL VINYL ETHER	34576
5U	UG/L	BROMOFORM	3210
5U	UG/L	1,1,2,2-TETRACHLOROETHANE	3451
5U	UG/L	TETRACHLOROETHENE	3447
5U	UG/L	TOLUENE	7412
5U	UG/L	CHLOROBENZENE	3430
5U	UG/L	ETHYL BENZENE	34371
5U	UG/L	M-XYLENE	
5U	UG/L	O&P-XYLENE(MIXED)	

FOOTNOTES
NA-AVERAGE VALUE NA-NOT ANALYZED NA1-INTERFERENCES
J-ESTIMATED VALUE J1-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
K1-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

MAY 31 1984

DATE:

SUBJECT: Hazardous Waste Site Investigation, Piney Woods Playground, Chattanooga, Tennessee

FROM: Chief, Hazardous Waste Section
Engineering Support Branch

TO: Al Smith, Chief
ERRB, AWMD

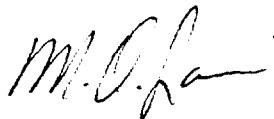
ATTN: Wayne Mathis/Richard Green
SSES

THRU: Michael R. Carter, Chief
Engineering Support Branch



Attached is a copy of the subject report for the investigation conducted at Piney Woods Playground during November 1983. The following individual has requested a copy of this report.

W. Daniel Phelps, Manager
Environmental Facilities
Chattanooga Plant
4902 Central Avenue
Chattanooga, Tennessee 37410



M. D. Lair, P.E.

Attachment

cc: Finger/Adams/Carter/Lair

HAZARDOUS WASTE SITE INVESTIGATION
PINEY WOODS PLAYGROUND
CHATTANOOGA, TENNESSEE
PROJECT NO. 84-017
MAY 31, 1984

INTRODUCTION

On November 21, 1983 an investigation was conducted at Piney Woods Playground, Chattanooga, Tennessee, by Jim Kopotic, U. S. Environmental Protection Agency (US-EPA), Region IV, Environmental Services Division (ESD). This investigation was requested by the US-EPA, Region IV, Air and Waste Management Division (AWMD), to determine if contaminants are present on the surface of the playground; in particular those contaminants associated with wastes disposed of at Residue Hill and detected in the seepage of Piney Woods Spring during previous US-EPA investigations (1,2,3).

STUDY AREA AND SCOPE

The site is located in southwest Chattanooga, Tennessee, between Wilson Road and Central Avenue (Figure 1). The area is surrounded by several large industrial facilities and heavily travelled roads, including Interstate 24 located approximately one mile north of the playground. Piney Woods Playground occupies approximately one acre of land 400 feet south of Residue Hill (Velsicol Chemical Corporation).

The scope of this investigation included the collection of surface soil samples from the playground, and water and sediment/soil samples from the seep drainage basin (Figure 2). All samples collected during this investigation were split with Velsicol personnel Dan Phelps (Environmental Manager) and Lewis Cox (Environmental Technician).

SUMMARY

Elevated concentrations of lead, ranging from 54 to 88 mg/kg, were detected in the soil/sediment samples from Piney Woods Playground and the seep basin. Elevated concentrations of arsenic (7.0 and 21 mg/kg) were detected in the soil samples from the playground. The control soil sample contained mercury and several pesticides, not detected in the other samples. Several solvents, ranging in concentration from 62 ug/kg xylene to 500 ug/kg (estimated concentration) of chlorotoluene (tentative identification), were detected in the sediment from the seep basin and were not detected in the other samples. .

RESULTS AND DISCUSSION

General

The order of sample collection was from areas of suspected low contamination to areas of suspected high contamination. Sample collection included: a control surface soil sample; a composite surface soil sample from the playground area; a sample from flowing water in the seep drainage basin; and two sediment samples collected from the seep drainage basin. Table 1 provides a description of the sampling stations. A summary of the analytical data for those compounds detected is presented in Tables 2 and 3. A photographic log and photographs of the site are included as Appendix A. The complete analytical results are attached to this report as Appendix B.

Playground

The control soil sample (PW-4C) was collected from an area of Piney Woods Playground south of the playground restrooms (Figure 2). The playground is situated in a small valley with the north, east, and south boundary sloping toward the playground. Although analytical data revealed that sample PW-4C contained five organic compounds (Table 2), which were not detected in the other samples, this area was chosen because of the location with respect to Residue Hill, the seep, possible run-off of material (pesticides, fertilizer, etc.) from the surrounding homes, and because it is in an area of lesser use and travel compared to other areas of Piney Woods Playground. The composite soil sample (PW-3) from the playground contained the same 17 metals detected in sample PW-4C. However, no organic compounds were detected in sample PW-3 above the minimum detection limit (Appendix B).

Arsenic was detected at 7.0 mg/kg and 21 mg/kg in samples PW-4C and PW-3, respectively. Analytical data from the 1972 Urban Soils Monitoring Program for five United States cities reported the estimated geometric mean for arsenic concentrations in urban soils ranged from 1.6 ppm (mg/kg) in Lake Charles, Louisiana, to 13.0 ppm (mg/kg) in Reading, Pennsylvania (4).

Lead, which is generally found to occur naturally in soils at a concentration ranging from 10-20 ppm (mg/kg) (4), was detected at 88 mg/kg and 66 mg/kg in samples PW-4C and PW-3, respectively. Analytical data from the same 1972 Urban Soils Monitoring Program report revealed lead concentrations (estimated geometric mean) that ranged from 39.0 ppm (mg/kg) in urban soils of Lake Charles, Louisiana to 267.0 ppm (mg/kg) in urban soils of Pittsburgh, Pennsylvania (4). Analytical data from the 1973 Urban Soils Monitoring Program reported the estimated geometric mean for lead concentrations in urban soils of five different United States cities to range from 41.6 ppm (mg/kg) in Greenville, South Carolina to 203.2 ppm (mg/kg) in Washington, D.C. (5).

Mercury was detected at 0.11 mg/kg in the control soil sample (PW-4C), but was not detected in sample PW-3. In a US-EPA memo, "Metals in Soil - A Brief Summary," the geometric mean concentration for mercury in Eastern United States Soils was 0.096 ppm (mg/kg) (6).

Refer to Table 2, Analytical Data Summary for information on the remaining 14 metals not discussed but detected in samples PW-4C and PW-3.

Aldrin, an insecticide used primarily for control of soil insects and termite control around buildings, was detected in sample PW-4C at 3.4 ug/kg and was not detected in sample PW-3. Analytical data from the 1971 Urban Soils Monitoring Program reported the estimated geometric mean for aldrin concentrations to range from non-detected for urban soils from Gadsden, Alabama; Macon, Georgia; and Newport News, Virginia to 3 ppb (3 ug/kg) in Hartford, Connecticut (7).

4,4'-DDE (p,p'-DDE), a product of the degradation of DDT, was detected in sample PW-4C at 24 ug/kg and 4,4'-DDD (p,p'-DDD) was detected at 23 ug/kg in sample PW-4C; neither of these compounds were detected in sample PW-3.

Two constituents of technical chlordane (gamma-chlordane and trans-nonachlor) were detected at estimated concentrations of 2 ug/kg, each, in sample PW-4C, and were not detected in sample PW-3.

Seep Basin

The water sample from the seep drainage basin (PW-2SW) contained ten metals ranging in concentration from 0.012 mg/l for titanium to 90 mg/l for calcium (Table 3). No organic compounds were detected above the minimum detection limit (Appendix B). The water in the seep basin appeared to be coming from a zone of very small individual seeps or outcrops approximately 60 feet south of the French drain system, and were collecting to form a very small stream. Sample PW-2SW was collected approximately 100 feet south of the seep zone. Approximately 160 feet south of the seep zone there appeared to be a recharge zone (Figure 2; photographs 17-19). It should be noted that the National Oceanic and Atmospheric Administration (NOAA) station, Chattanooga, Tennessee, indicated that precipitation for November 20, 1983, was 1.46 inches.

The sediment sample (PW-2(0)) was collected at the same location as PW-2SW. This sample contained 15 metals ranging in concentration from 20 mg/kg chromium to 70,000 mg/kg iron. Arsenic and mercury were not detected. Lead concentration was 78 mg/kg. No organic compounds were detected above the minimum detection limits.

Sample PW-1(0) was a surface sediment/soil sample collected from the seep zone. Fifteen metals and four organic compounds were detected in this sample. Concentrations for the metals ranged from 23 mg/kg for chromium to 42,000 mg/kg for iron. Arsenic and mercury were not detected in this sample. The concentration of barium detected in sample PW-1(0) was elevated (1,700 mg/kg) compared to the concentrations of barium (98 mg/kg to 180 mg/kg) detected in the other samples. The two organic compounds positively identified and quantified in sample PW-1(0) were chlorobenzene (360 ug/kg) and xylene (62 ug/kg). An unidentified terpene was detected at an estimated concentration of 200 ug/kg. Chlorotoluene was detected at an estimated concentration of 500 ug/kg.

STUDY METHODOLOGY

All sampling and sample handling was conducted in accordance with the Water Surveillance Branch Standard Operating Procedures and Quality Assurance Manual (Draft, August 1980). Laboratory analyses were performed by the US-EPA Region IV and contract laboratories in accordance with the Analytical Support Branch Operations and Quality Control Manual (April 1982) or as specified by the existing US-EPA standard procedures and protocols for the contract analytical laboratory program.

REFERENCES

1. Hazardous Waste Site Investigation, Velsicol Residue Hill - Piney Woods Playground, Chattanooga, Tennessee, June 26, 1980; U. S. Environmental Protection Agency, Region IV, Surveillance and Analysis Division, January 16, 1981.
2. Quality Assurance Overview, Residue Hill Hazardous Waste Site Investigation, Velsicol Chemical Corporation, Chattanooga, Tennessee, RCRA Project Number 82-127, December 3, 1982; U. S. Environmental Protection Agency, Region IV, Environmental Services Division, December 6, 1982.
3. Quality Assurance Overview, Residue Hill Hazardous Waste Site Investigation, Velsicol Chemical Corporation, Chattanooga, Tennessee, RCRA Project Number 82-127A; U. S. Environmental Protection Agency, Region IV, Environmental Services Division, May 17, 1983.
4. Carey, Ann E., et al. "Heavy Metal Concentrations in Soils of Five United States Cities, 1972 Urban Soils Monitoring Program." Pesticides Monitoring Journal, Vol. 13, No. 4, March 1980, 150-154.
5. Carey, Ann E., et al. "Monitoring Pesticides in Agricultural and Urban Soils of the United States." Pesticides Monitoring Journal, Vol. 13, No. 1, June 1979, 23-27.
6. November 6, 1980, US-EPA memo from Barrett and Carey to Harvey; reference "Metals in Soils - A Brief Summary."
7. Carey, Ann., et al. "Pesticides Residue Concentrations in Soils of Five United States Cities, 1971 Urban Soils Monitoring Program." Pesticides Monitoring Journal, Vol. 13, No. 1, June 1979, 17-22.
8. Water Surveillance Branch Standard Operating Procedures and Quality Assurance Manual (Draft); U. S. Environmental Protection Agency, Region IV, Surveillance and Analysis Division; August 29, 1980.

Figure 1
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

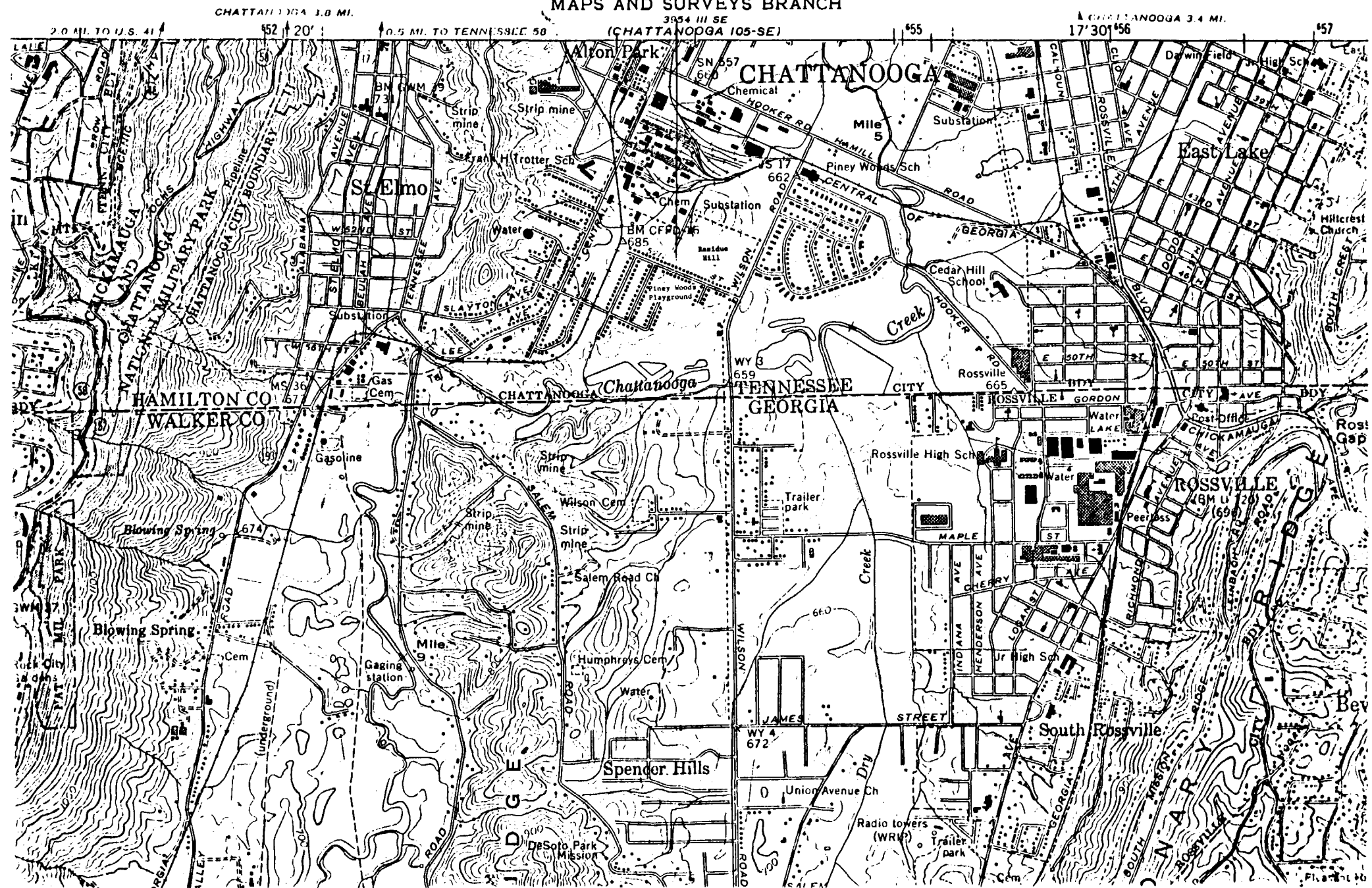


Figure 2
Sampling Locations
Piney Woods Playground
Chattanooga, Tennessee

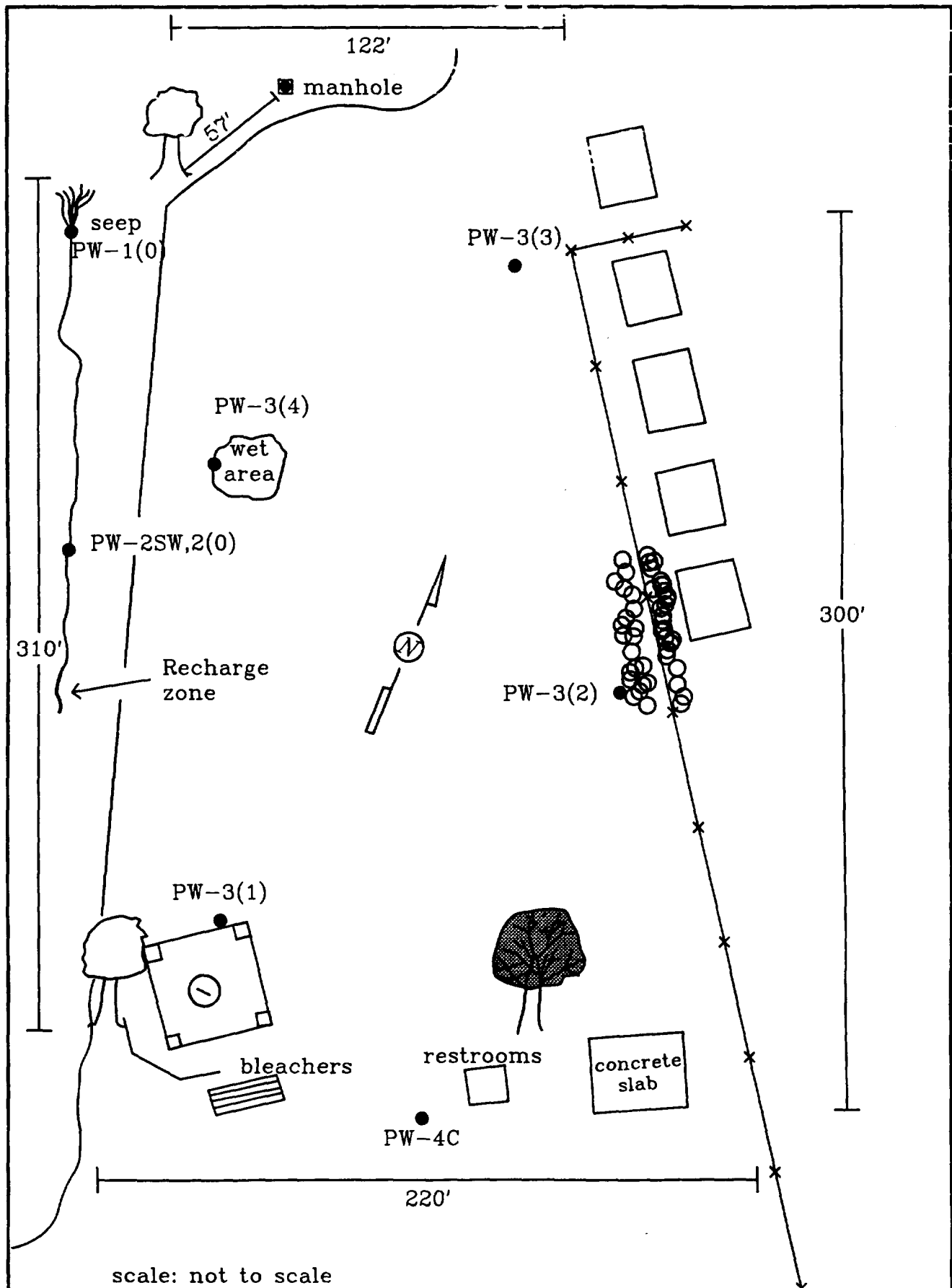


TABLE 1
SAMPLING LOCATION DESCRIPTION
PINEY WOODS PLAYGROUND
CHATTANOOGA, TENNESSEE

<u>Station</u>	<u>Date</u>	<u>Time</u>	<u>Description</u>
PW-4C	11-21-83	1230	Control soil sample collected 24-feet south of playground restrooms (Figure 2). Sample consisted of soil material from ground surface to approximately 3 inches below ground surface (see attached photographs).
PW-3	11-21-83	1245-1310	Composite soil sample from the playground, collected from 4 stations: PW-3(1) - collected near 2nd base, approximately 80 feet north of the back-stop. PW-3(2) - collected approximately 80 feet north of the concrete slab and 20 feet from fence. PW-3(3) - collected approximately 220 feet north of concrete slab. PW-3(4) - collected from wet area located approximately 100 feet south of seep zone, and 30 feet from playground boundary. Sample from each station collected from surface to approximately 3 inches below ground surface and composited into a single sample prior to containerizing.
PW-2SW	11-21-83	1400	Surface water (flowing) from seep drainage basin collected approximately 100 feet south of seep zone.
PW-2(0)	11-21-83	1425	Sediment from the seep drainage basin bed (bottom) to a depth of approximately 6 inches. Collected from same location as sample PW-2SW; approximately 100 feet south of seep zone.
PW-1(0)	11-21-83	1520	Composite sediment/soil sample from seep zone, approximately 60 feet south of the French drain system (manhole).

03/21/84

TABLE 2
PINEY WOODS PLAYGROUND
ANALYTICAL DATA SUMMARY
SOIL/SEDIMENT SAMPLES
CHATTNOUGA, TENNESSEE

PW=4C CONTROL SOIL 11/21/83 1230	PW=3 COMP SUR-SOIL 11/21/83 1245	PW=2(U) SEEP BASIN 11/21/83 1425	PW=1(U) COMP BASIN 11/21/83 1520
MG/KG	MG/KG	MG/KG	MG/KG

INORGANIC ELEMENT/COMPOUND

ARSENIC	21	180	1700
BARIUM	150	180	1700
CADMIUM	10	20	23
CHROMIUM	25	21	23
COPPER	13	22	32
NICKEL	15	78	54
LEAD	66	45	46
SILICONIUM	18	54	52
TITANIUM	64	37	33
VANADIUM	34	31	30
YTRIUM	20	160	140
ZINC	82	160	140
MERCURY	11	19000	18000
ALUMINUM	20000	1100	1200
MANGANESE	1800	5600	36000
CALCIUM	3100	1800	7300
MAGNESIUM	870	70000	42000
IRON	28000		

SELECTED CHLORINATED COMPOUNDS

UG/KG	UG/KG	UG/KG
34	---	---
24	---	---
23	---	---
2J	---	---
2J	---	---

ALDRIN
4,4'-DDE (P,P'-DDE)
4,4'-DDD (P,P'-DDD)
GAMMA-CHLORDANE /2
TRANS-NONACHLOR /2

PURGEABLE ORGANIC COMPOUNDS

CHLOROBENZENE	---	360
OMP-XYLENE(MIXED)	---	62
UNIDENTIFIED TERPENE	---	200J
CHLOROTOLUENE	---	500JN

*****SEE ATTACHED LIST OF FOOTNOTES*****

03/21/84

TABLE 3
PINEY WOODS PLAYGROUND
ANALYTICAL DATA SUMMARY
WATER/SEEP SAMPLE
CHATTNOUGA, TENNESSEE

PW-2SW
DOWNGRAD
MANHOLE
11/21/83
1400

UG/L

INORGANIC ELEMENT/COMPOUND

BARIUM
STRONTIUM
TITANIUM
ZINC
ALUMINUM
MANGANESE

56
150
12
12
800
56

MG/L

CALCIUM
MAGNESIUM
IRON
SODIUM

90
12
0.6
16

*****SEE ATTACHED LIST OF FOOTNOTES*****

FOOTNOTES FOR DATA SUMMARY TABLES

-- The parameter was analyzed for but not detected. Detection limits are specified on the analytical data sheets.

NA Analysis was not conducted for this parameter.

NAI Analysis for this parameter was attempted but could not be completed because of interference.

J Estimated value.

K Actual value is known to be less than the value given.

L Actual value is known to be greater than the value given.

N Presumptive evidence of the presence of the material.

A Average value based on two or more observations.

1 When no value is reported, see chlordanes constituents.

2 Constituent or metabolite of technical chlordanes.

Remark - See analytical data sheet for additional information.

APPENDIX A

PHOTOGRAPH LOG
PINEY WOODS PLAYGROUND
CHATTANOOGA, TENNESSEE

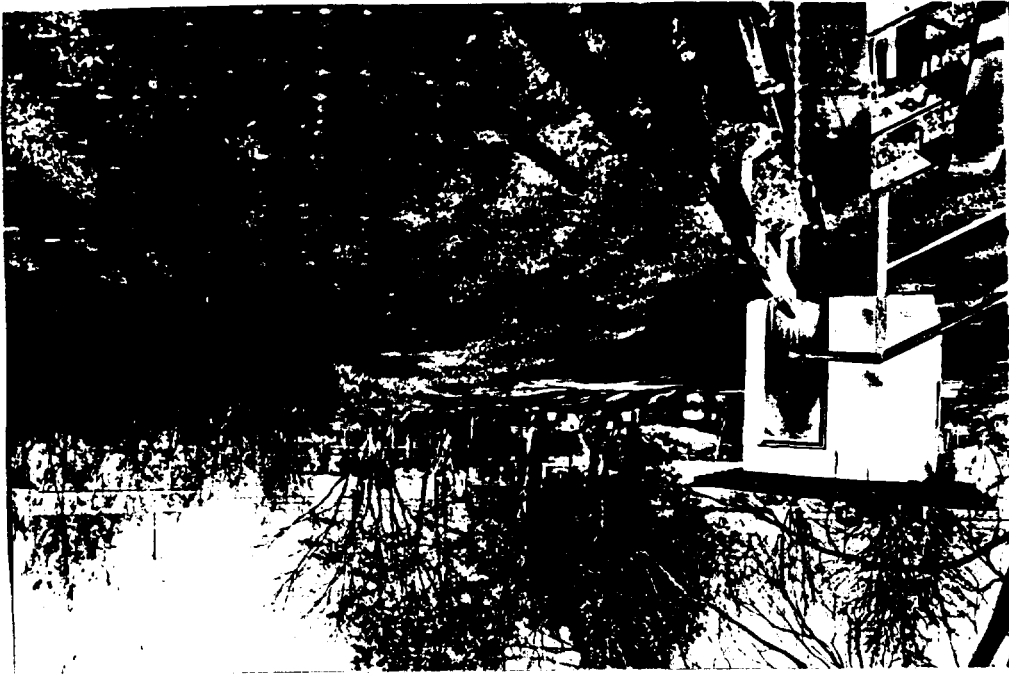
<u>Photograph</u>	<u>Date</u>	<u>Time</u>	<u>Description</u>
1	11-21-83	1240	Station location for soil sample PW-4C.
2	11-21-83	1241	Close-up of station location PW-4C.
3	11-21-83	1433	Station location for samples PW-2SW and PW-2(0).
4-10	11-21-83	1600	Panoramic view of Piney Woods Playground.
11	11-21-83	1635	Sample location PW-3, Station 2.
12	11-21-83	1636	Sample location PW-3, Station 3.
13	11-21-83	1640	Sample location PW-3, Station 4.
14	11-21-83	1641	Manhole - location of seep collection system.
15	11-21-83	1643	Station PW-1.
16	11-21-83	1644	Station PW-1.
17	11-21-83	1700	Recharge area for water in seep drainage basin.
18	11-21-83	1702	Close up of the recharge area.
19	11-21-83	1703	Downgradient of recharge area.



2.



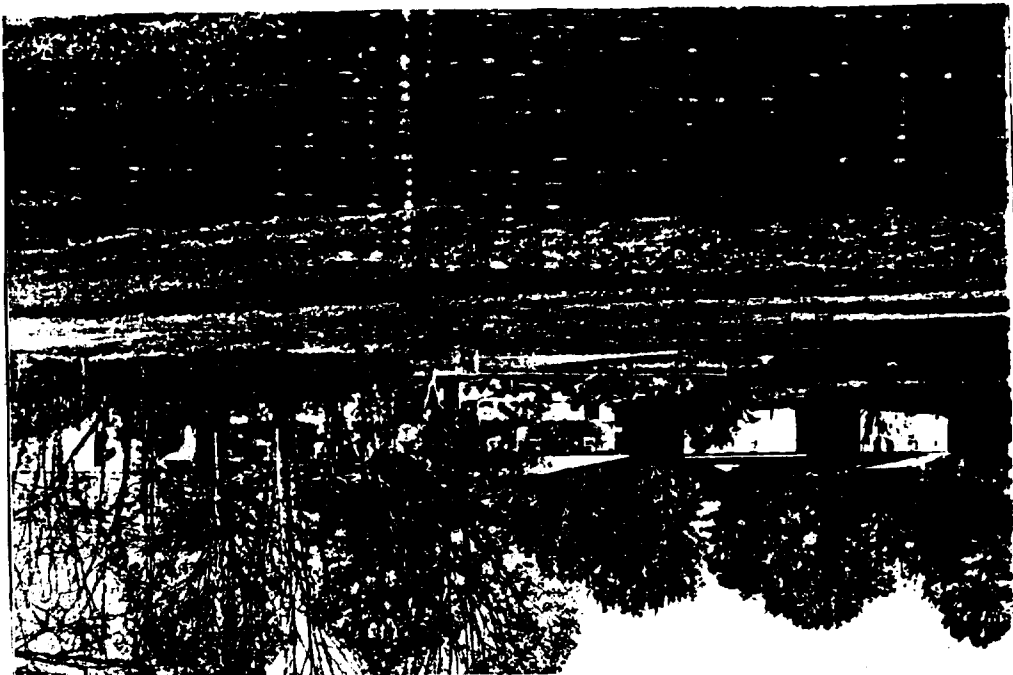
1.



4.



3.



9.



5.



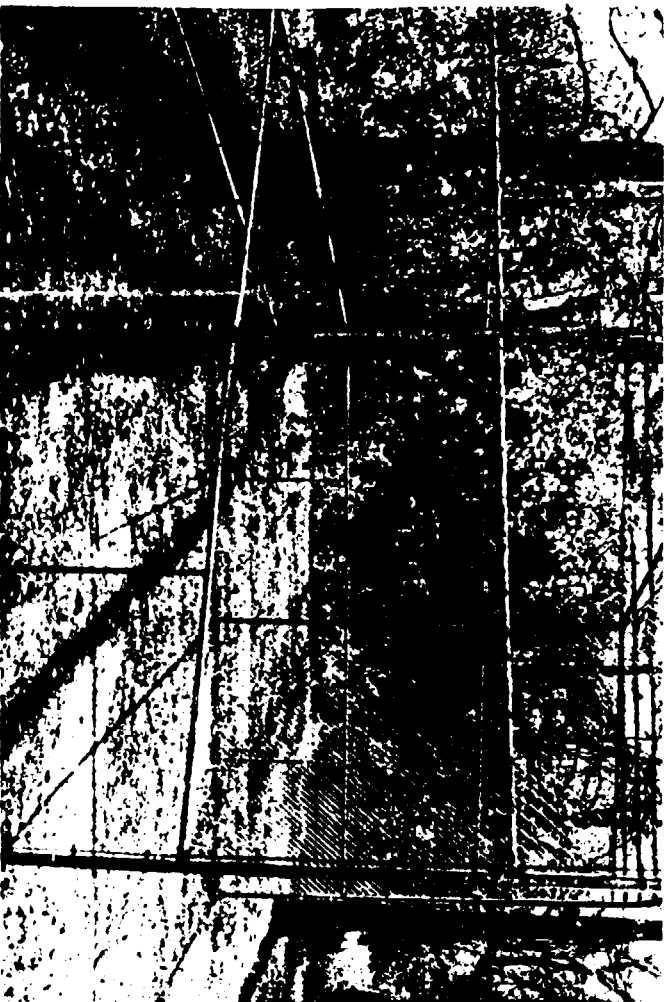
8.



7.



9.



10.

11.

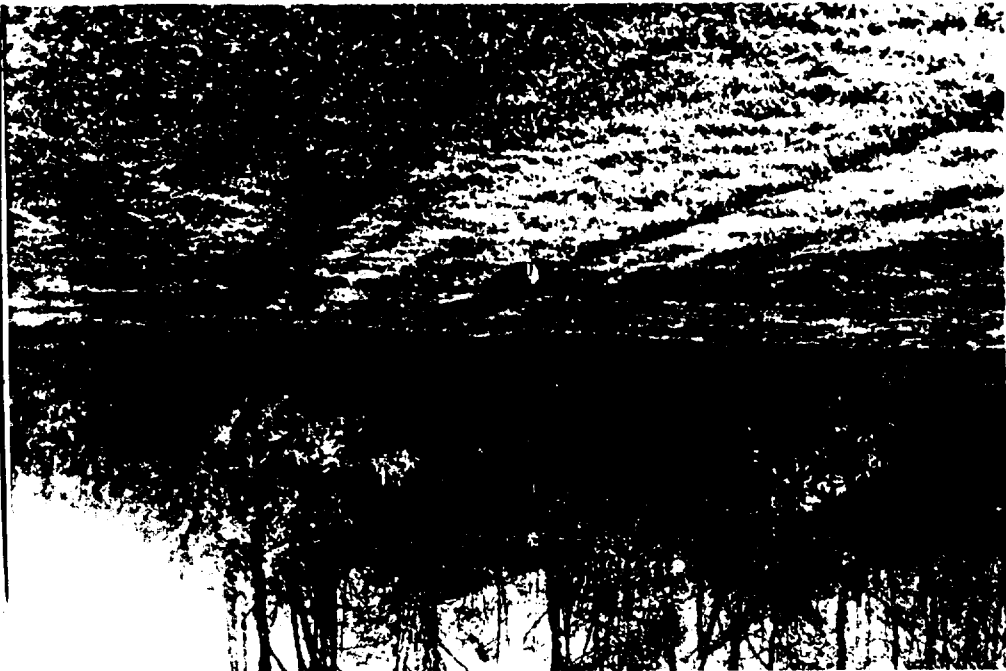


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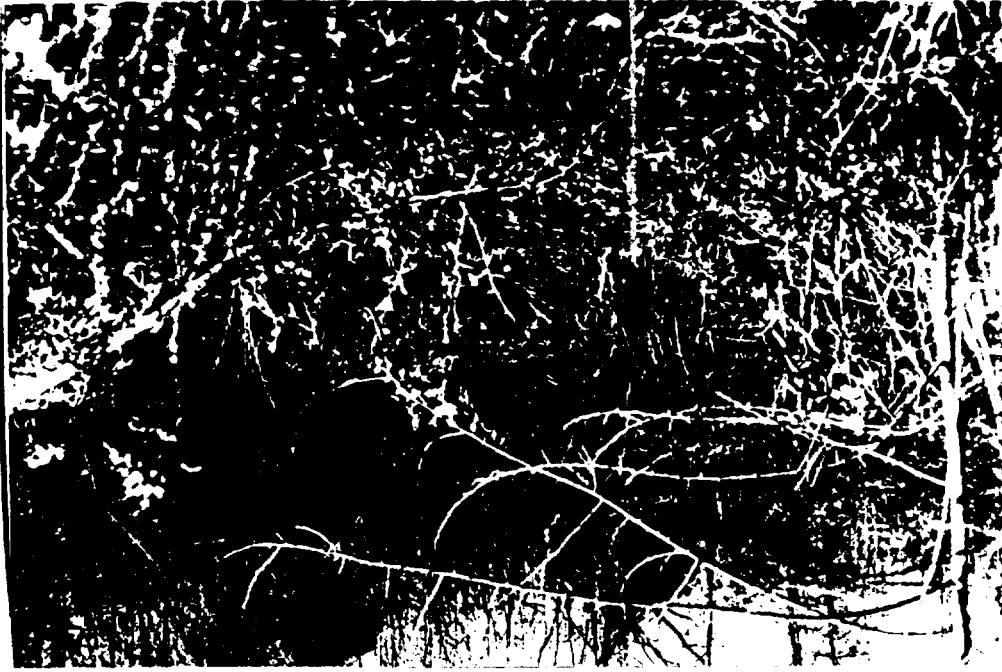




14.



13.



16.



15.



17.



18.



19.

APPENDIX B

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
FPA-FSD, REG IV
ATHENS GEORGIA

01/20/84

METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: H4C 411 SAMPLE TYPE: SOIL

PROJECT NO.: H4-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION 1.0.: PA-4C CONTROL SOIL SAMPLE APP. 30' BEHIND RESTROOM
STORED STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1230
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUHITT
SEALED: YES

CHEMIST: AAL
ANALYTICAL METHOD:

REMARKS:
REMARKS:

SAMPLE LOG VERIFIED BY: TMB SAMPLE DATA VERIFIED BY: MAW

REMARKS

FOOTNOTES

- *A-AVERAGE VALUE
- *J-ESTIMATED VALUE
- *K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
- *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
- *U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM DETECTION LIMIT.
- *NA-NOT ANALYZED
- *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
- *AI-INTERFERENCES

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STORED
30	MG/KG	SILVER	01078
7.0	MG/KG	ARSENIC	01003
NA	MG/KG	BORON	01023
98	MG/KG	BARIUM	01008
30	MG/KG	BERYLLIUM	01013
30	MG/KG	CADMIUM	01028
NA	MG/KG	COPALT	01038
27	MG/KG	CHROMIUM	01029
14	MG/KG	COPPER	01043
60	MG/KG	MOLYBDENUM	01063
13	MG/KG	NICKEL	01068
88	MG/KG	LEAD	01052
10	MG/KG	ANTIMONY	01098
120	MG/KG	SELENIUM	01148
300	MG/KG	TIN	01103
18	MG/KG	STRONTIUM	01083
120	MG/KG	TELLURIUM	45513
31	MG/KG	TITANIUM	01153
NA	MG/KG	THALLIUM	34480
31	MG/KG	VANADIUM	01088
6.6	MG/KG	YTRIUM	45514
7.7	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.11	MG/KG	MERCURY	71921
20000	MG/KG	ALUMINUM	01108
1800	MG/KG	MANGANESE	01053
3100	MG/KG	CALCIUM	00917
870	MG/KG	MAGNESIUM	00924
28000	MG/KG	IRON	01170
3000	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM, HEXAVALENT	
21	%	MOISTURE	70320

SAMPLE AND ANALYSTS MANAGEMENT SYSTEM
EPA-RSD, REG IV
ALPHAS, GEORGIA

07/20/84

DETAILS
DATA REPORTING SHEET
SPECIMEN/LOT/SLUDGE(DRY WT)

SAMPLE NO.: 84C 412 SAMPLE TYPE: SOIL

PRODUCT NO.: 84-017
PROGRAM ELEMENT: NSF
SOURCE: PLAYA WOODS PLAYGROUND
CITY: CHATTAHOOGA
STATE: TN

STATION 1.0: 1 PM--3 COMPOSITE OF PLAYGROUND SURFACE SOIL
SHEET SECTION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1245
STOP DATE/TIME 11/21/83 1310

COLLECTED BY: J KOPOTIC
RECEIVED FROM: J KOPOTIC
SAMPLE FROM: DATE/TIME 11/22/83 1425
RECD BY: D COLQUHITT
SEALING: YES

CHEMIST: JAW
ANALYTICAL METHOD:

REMARKS

SAMPLE LOG VERIFIED BY: TAW
SAMPLE DATA VERIFIED BY: MAM

FOOTNOTES
*A-AVERAGE VALUE *NA-OF ANALYZED
*NAI-INTERFERENCES
*ESTIMATED VALUE *E-EVIDENCE OF PRESENCE OF MATERIAL
*ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*A-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS

UNITS	RESULTS	ELEMENT
MG/KG	50	SILVER
MG/KG	21	ARSENIC
MG/KG	NA	MERCURY
MG/KG	150	BARUM
MG/KG	50	BERYLLIUM
MG/KG	50	CADMIUM
MG/KG	10	CORAL
MG/KG	25	CHROMIUM
MG/KG	13	COPPER
MG/KG	100	GOLYNDIUM
MG/KG	15	NICKEL
MG/KG	66	LEAD
MG/KG	150	ANTIMONY
MG/KG	200	SELENIUM
MG/KG	500	TIN
MG/KG	18	STRONTIUM
MG/KG	200	TELURIUM
MG/KG	64	LITHIUM
MG/KG	NA	THALLIUM
MG/KG	34	VANADIUM
MG/KG	20	VIETRIUM
MG/KG	42	ZINC
MG/KG	0.250	ZIRCONIUM
MG/KG	24000	MERCURY
MG/KG	3000	ALUMINUM
MG/KG	3400	MANGANESE
MG/KG	2000	CALCIUM
MG/KG	32000	MAGNESIUM
MG/KG	5000	IRON
MG/KG	NA	SODIUM
MG/KG	28	CHLORINE, HEXAVALENT
MG/KG	70320	MOISTURE

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, RFG IV
ATHENS GEORGIA

01/20/84

DATA REPORTING SHEET
SEDIMENT/SOIL/SLODGE(DRY WT)

SAMPLE NO.: H4C 413 SAMPLE TYPE: SEDIM

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PIERCE ACROSS PLATTSBURGH
CITY: CHATTANOOGA STATE: TN

STATION 1, D.: P-2(6) APP 100' DOWNGRADIENT OF SEEP MANHOLE
STORET STATION: NOT

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1425
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: M
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THB SAMPLE DATA VERIFIED BY: MAW

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *N-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STORET
100	MG/KG	SILVER	01078
300	MG/KG	ARSENIC	01003
NA	MG/KG	BORON	01023
180	MG/KG	BARIUM	01008
100	MG/KG	BERYLLIUM	01013
100	MG/KG	CADMIUM	01028
200	MG/KG	COBALT	01038
20	MG/KG	CHROMIUM	01029
21	MG/KG	COPPER	01043
200	MG/KG	GLYBDEBOL	01063
22	MG/KG	NICKEL	01068
78	MG/KG	LEAD	01052
300	MG/KG	ANTIMONY	01098
400	MG/KG	SELENIUM	01148
1000	MG/KG	TIN	01103
45	MG/KG	STRONTIUM	01083
400	MG/KG	TELLURIUM	45513
54	MG/KG	TITANIUM	01153
NA	MG/KG	THALLIUM	34480
37	MG/KG	VANADIUM	01088
31	MG/KG	YTRIUM	45514
160	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.250	MG/KG	MERCURY	71921
19000	MG/KG	ALUMINUM	01108
1100	MG/KG	MANGANESE	01053
5600	MG/KG	CALCIUM	00917
1800	MG/KG	MAGNESIUM	00924
70000	MG/KG	IRON	01170
10000	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM, HEXAVALENT	
48	%	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-RSD, REG IV
ATLANTA, GEORGIA

01/20/84

METALS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE (DRY WT)

SAMPLE NO.: PAC 415 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTAHOOGA STATE: TN

STATION 1.0: P-1(0) COMPOSITE OF SOIL SEEP DRAINAGE BASIN
SIGMET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1520
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLOUITT
SEALED: YES

CHEMIST: JAC
ANALYTICAL METHOD:

REMARKS:
REMARKS:

SAMPLE LOG VERIFIED BY: TBA SAMPLE DATA VERIFIED BY: MAN

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	SIGMET
50	MG/KG	SILVER	01078
150	MG/KG	ARSENIC	01003
NA	MG/KG	BORON	01023
1700	MG/KG	BARIUM	01008
50	MG/KG	BERYLLIUM	01013
50	MG/KG	CADMIUM	01028
100	MG/KG	COBALT	01038
23	MG/KG	CHROMIUM	01029
23	MG/KG	COPPER	01043
100	MG/KG	GLYCIDOL	01063
32	MG/KG	NICKEL	01068
54	MG/KG	LEAD	01052
150	MG/KG	ANTIMONY	01098
200	MG/KG	SELENIUM	01148
500	MG/KG	TI	01103
46	MG/KG	STRONTIUM	01083
200	MG/KG	TELLURIUM	45513
52	MG/KG	TITANIUM	01153
NA	MG/KG	THALLIUM	34480
33	MG/KG	VANADIUM	01088
30	MG/KG	YTRIUM	45514
140	MG/KG	ZINC	01093
NA	MG/KG	ZIRCONIUM	01163
0.250	MG/KG	MERCURY	71921
18000	MG/KG	ALUMINUM	01108
1200	MG/KG	MANGANESE	01053
36000	MG/KG	CALCIUM	00917
7300	MG/KG	MAGNESIUM	00924
42000	MG/KG	IRON	01170
5000	MG/KG	SODIUM	00934
NA	MG/KG	CHROMIUM, HEXAVALENT	
69	%	MOISTURE	70320

FOOTNOTES

NA-AVERAGE VALUE NA-NOT ANALYZED NAI-INTERFERENCES
E-ESTIMATED VALUE E-EVIDENCE OF PRESENCE OF MATERIAL
K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
M-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

EPAPRISD, RFG IV
ATHENS, GEORGIA

EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE (DRY WT)

SAMPLE TYPE: SOIL

PROGRAM ELEMENT: NSP
GOODS PLAYGROUND
STATE: TN

4C CONTROL SOIL SAMPLE APP. 30' BEHIND RESTROOM

NO	START	DATE/TIME	11/21/83	1230
NO	STOP	DATE/TIME	00/00/00	

KOPOTIC RECEIVED FROM J KOPOTIC
 11/22/83 1425 REC'D BY: D COLAUNITT

88

DATA VERIFIED BY: CHH

*NA-NOT ANALYZED *NAI-INTERFERENCES
*NP-NEGATIVE EVIDENCE OF PRESENCE OF MATERIAL
*NKN-UNKNOWN TO BE LESS THAN VALUE GIVEN
*NLT-UNKNOWN TO BE GREATER THAN VALUE GIVEN
*NND-UNKNOWN TO BE DETECTED, THE NUMBER IS
*NNDL-UNKNOWN DETECTED LIMIT.

*****ANALYTICAL RESULTS*****

[illegible]

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, REG IV
ATHENS GEORGIA

*****ANALYTICAL RESULTS*****

RESULTS IN: UG/KG COMPOUND NAME
430000 BENZOIC ACID
50000 DICHLOROTOLUENE
50000 TRICHLOROTOLUENE

01/18/84 EXTRACTABLE ORGANIC ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 84C 411 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTAHOOGA STATE: TN

STATION I.D.: PW-4C CONTROL SOIL SAMPLE APP. 30' BEHIND RESTROOM
STORED STATUS: NO

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1230
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST:
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TMB DATA VERIFIED BY: CHH

REMARKS

FOOTNOTES

*A-AVERAGE VALUE *NA-NOT ANALYZED *NI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

0
2
3
4
5
6
7
8
9

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, RFG IV
ATHENS GEORGIA

01/18/84

EXTRACTED ORGANIC ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY W1)

SAMPLE NO.: 84C 412 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTAHOOGA STATE: TN

STATION I.D.: P7--3 COMPOSITE OF PLAYGROUND SURFACE SOIL
STORET STATION ID:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1245
SAMPLE COLLECTION: STOP DATE/TIME 11/21/83 1310

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST:
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TFB DATA VERIFIED BY: CHH

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	IN: DG/KG	COMPOUND NAME
500000		BENZOLIC ACID
50000		DICHLOROTOLUENE
50000		TRICHLOROTOLUENE

FOOTNOTES

- *A-AVERAGE VALUE
- *J-ESTIMATED VALUE
- *K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
- *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
- *U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS THE MINIMUM DETECTION LIMIT.
- *NA-NOT ANALYZED
- *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
- *NI-INTERFERENCES

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPH-85SD, REG IV
ATHENS GEORGIA

01/10/84
EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 84C 413 SAMPLE TYPE: SEDIM

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND STATE: TN
CITY: CHATTANOOGA

STATION 1, P 1 P-2(0) APP 100' DOWNGRADE OF SEEP MANHOLE

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1425
END DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUHITT
SEALED: YES

CHEMIST: CHH
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: CHH

REMARKS

FOOTNOTES
*AVERAGE VALUE *NA=NOT ANALYZED *NAI=INTERFERENCES
*ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	SUMMET
NA	UG/KG	N-NITROSODIPHENYLAMINE	34441
NA	UG/KG	1,2-DIPHENYLHYDRAZINE/AZOBENZENE	34349
5000U	UG/KG	BENZIDINE	39121
5000U	UG/KG	1,3-DICHLOROBENZENE	34569
5000U	UG/KG	1,4-DICHLOROBENZENE	34574
5000U	UG/KG	1,2-DICHLOROBENZENE	34270
5000U	UG/KG	BIS(2-CHLOROPHENYL) ETHER	34399
5000U	UG/KG	HEXACHLOROETHANE	34240
5000U	UG/KG	BIS(2-CHLOROISOPROPYL) ETHER	34431
5000U	UG/KG	N-NITROBENZENE	34450
5000U	UG/KG	HEXACHLOROCYCLOPENTADIENE	39705
5000U	UG/KG	HEXACHLOROCYCLOPENTADIENE	34554
5000U	UG/KG	1,2,4-TRICHLOROBENZENE	34445
5000U	UG/KG	NAPHTHALENE	34281
5000U	UG/KG	BIS(2-CHLOROPHENOXY) METHANE	34411
5000U	UG/KG	ISOPHORENE	34389
5000U	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	34584
5000U	UG/KG	2-CHLORONAPHTHALENE	34203
5000U	UG/KG	ACENAPHTHENE	34208
5000U	UG/KG	DIETHYL PHTHALATE	34344
5000U	UG/KG	2,4-DINITROTOLUENE	34614
5000U	UG/KG	2,6-DINITROTOLUENE	34629
5000U	UG/KG	4-CHLOROPHENYL PHENYL ETHER	34944
5000U	UG/KG	FLUORENE	34339
5000U	UG/KG	DIETHYL PHTHALATE	34436
5000U	UG/KG	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE	39701
5000U	UG/KG	HEXACHLOROBENZENE (HCB)	34639
5000U	UG/KG	4-BROMOPHENYL PHENYL ETHER	34464
5000U	UG/KG	PHENANTHRENE	34223
5000U	UG/KG	ANTHRACENE	39117
5000U	UG/KG	DIETHYL PHTHALATE	34379
5000U	UG/KG	FLUORANTHENE	34472
5000U	UG/KG	PIRENE	34245
5000U	UG/KG	BUTYL PHTHALATE	39102
5000U	UG/KG	RIS(2-ETHYLHEXYL) PHTHALATE	34529
5000U	UG/KG	BENZ(A)ANTHRACENE	34323
5000U	UG/KG	CHRYSENE	34634
5000U	UG/KG	3,3'-DICHLOROBENZIDINE	34250
5000U	UG/KG	DIETHYL PHTHALATE	34559
5000U	UG/KG	RENOLOK)FLUORANTHENE	34524
5000U	UG/KG	RENOLOK)FLUORANTHENE	34589
5000U	UG/KG	BENZ(A)PYRENE	34594
5000U	UG/KG	INDENO (1,2,3-CD) PYRENE	34609
5000U	UG/KG	DIBENZO(A,H)ANTHRACENE	34604
5000U	UG/KG	RENOLOK)PERYLENE	34624
5000U	UG/KG	2-CHLOROPHTHALATE	34655
5000U	UG/KG	2-NITROPHENOL	34619
5000U	UG/KG	2,4-DINITROPHENOL	34660
5000U	UG/KG	2-METHYL-4,6-DINITROPHENOL	39061
5000U	UG/KG	4-NITROPHENOL	34649
49	UG/KG	MIXTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM

EPA-RS01, REG 1A
ATLANTA, GEORGIA

EXTRACTABLE ORGANIC ANALYSIS, MISC

DATA REPORTING SHEET

SCHEMATIC/SUBJECT (DRY WT)

SAMPLE NO.: 84C 413 SAMPLE TYPE: SOLID

PROJECT NO.: 84C-1 PROGRAM ELEMENT: NSF

SOURCE: PILOT PLANTS PLANTATION

CITY: CHATTANOOGA

STATE: TN

STATION I.D.: P-2(9) APP 1001 DRAINAGE OF SEEP MANHOLE

STREET STATION: 401

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1425

SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC

SAMPLE NO.: 11/22/83 1425

RECD BY: D CONNITT

SEALED: YES

CHEMIST:

ANALYTICAL METHOD:

REMARK:

REMARK:

SAMPLE LOG VERIFIED BY: CHH

*****REMARKS*****

***-AVERAGE VALUE ***-RESPECTIVE EVIDENCE OF PRESENCE OF MATERIAL

***-ANALYSIS ***-INTERFERENCES

***-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN

***-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN

***-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS

THE MINIMUM DETECTION LIMIT.

FPA-ESD, REG IV
ATHENS, GEORGIA

EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE TYPE: SOIL

NO1
NO2
NO3
NO4
NO5
NO6
NO7
NO8
NO9
NO10
NO11
NO12
NO13
NO14
NO15
NO16
NO17
NO18
NO19
NO20
NO21
NO22
NO23
NO24
NO25
NO26
NO27
NO28
NO29
NO30
NO31
NO32
NO33
NO34
NO35
NO36
NO37
NO38
NO39
NO40
NO41
NO42
NO43
NO44
NO45
NO46
NO47
NO48
NO49
NO50
NO51
NO52
NO53
NO54
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NO56
NO57
NO58
NO59
NO60
NO61
NO62
NO63
NO64
NO65
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NO67
NO68
NO69
NO70
NO71
NO72
NO73
NO74
NO75
NO76
NO77
NO78
NO79
NO80
NO81
NO82
NO83
NO84
NO85
NO86
NO87
NO88
NO89
NO90
NO91
NO92
NO93
NO94
NO95
NO96
NO97
NO98
NO99
NO100

DN#	START	DATE/TIME	11/21/83	1520
DN#	STOP	DATE/TIME	00/00/00	

DATE/TIME 11/22/83 1425 REC'D BY: D COLAVITTA

שולחן

DATA VERIFIED BY: DGR

COMPOUNDS EXCEPT PHENOLS IS SUSPECT BASED ON GC DATA

NAME
VALUE
IS KNOWN TO BE LESS THAN VALUE GIVEN

IS THE NUMBER GIVEN
IF THE VALUE IS
GREATER THAN
THE VALUE OF
THE FIRST
ANALYZED FOR
THE UNKNOWN
AS KNOWN
THE VALUE

WAS ANALYZED FOR BUT NOT
WAS DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STRUCTURE
MA	UG/KG	M-NITROSODIMETHYLAMINE	34441
MA	UG/KG	1,2-DIPHENYLHYDRAZINE/AZO BENZENE	34349
MA	UG/KG	PERIDINE	34121
50000	UG/KG	1,3-DICHLOROBENZENE	34559
50000	UG/KG	1,4-DICHLOROBENZENE	34574
50000	UG/KG	1,2-DICHLOROBENZENE	34539
50000	UG/KG	BIS(2-CHLOROETHYL) ETHER	34427
50000	UG/KG	HEXACHLOROETHANE	34436
50000	UG/KG	BIS(2-CHLOROISOPROPYL) ETHER	34432
50000	UG/KG	M-NITROSODI-n-PROPYLAMINE	34431
50000	UG/KG	NITROBENZENE	34450
50000	UG/KG	MEXACHLOROBUTADIENE	34705
50000	UG/KG	1,2,4-TRICHLOROBENZENE	34445
50000	UG/KG	NAPHTHALENE	34445
50000	UG/KG	BIS(2-CHLOROETHOXY) METHANE	34481
50000	UG/KG	ISOPHORONE	34481
50000	UG/KG	HEXACHLOROCYCLOPENTADIENE (HCCP)	34431
50000	UG/KG	2-CHLORONAPHTHALENE	34584
50000	UG/KG	ACENAPHTHYLENE	34203
50000	UG/KG	ACENAPHTHENE	34208
50000	UG/KG	DIMETHYL PHTHALATE	34344
50000	UG/KG	2,4-DINITROBENZENE	34014
50000	UG/KG	2,6-DINITROBENZENE	34029
50000	UG/KG	4-CHLOROPHENYL PHENYL ETHER	34044
50000	UG/KG	FLUORENE	34384
50000	UG/KG	DIFETHYL PHTHALATE	34334
50000	UG/KG	N-ETHANOSODIPHENYLAMINE/DIPHENYLAMINE	34430
50000	UG/KG	HEXACHLOROBENZENE (HCB)	34701
50000	UG/KG	4-BROMOPHENYL PHENYL ETHER	34434
50000	UG/KG	PHENANTHRENE	34444
50000	UG/KG	ANTHRACENE	34223
50000	UG/KG	DI-n-BUTYL PHTHALATE	34312
50000	UG/KG	FLUORANTHENE	34379
50000	UG/KG	PERYLENE	34447
50000	UG/KG	BENZYL BUTYL PHTHALATE	34295
50000	UG/KG	BIS(2-FETHYLHEXYL) PHTHALATE	34102
50000	UG/KG	BENZ(DIA)ANTHRACENE	34522
50000	UG/KG	CHRYSENE	34323
50000	UG/KG	3,3'-DICHLORODIPHENYL DIBENZIDINE	34534
50000	UG/KG	DI-n-DECYL PHTHALATE	34534
50000	UG/KG	BENZ(DH)FLUORANTHENE	34250
50000	UG/KG	BENZ(DH)FLUORANTHENE	34250
50000	UG/KG	RENUO-A-PYRENE	34250
50000	UG/KG	INDENO (1,2,3-CD) PYRENE	34406
50000	UG/KG	DIBENZ(DA,H)ANTHRACENE	34559
50000	UG/KG	BENZ(DGHI)PERYLENE	34524
50000	UG/KG	2-CHLOROPHENOL	34549
50000	UG/KG	2-NITROPHENOL	34544
50000	UG/KG	PHENOL	34695
50000	UG/KG	2,4-DIMETHYLPHENOL	34603
50000	UG/KG	2,4-DICHLOROPHENOL	34604
50000	UG/KG	2,4,6-TRICHLOROPHENOL	34625
50000	UG/KG	4-CHLORO-3-METHYLPHENOL	34644
50000	UG/KG	2,4-DINITROPHENOL	34619
50000	UG/KG	2-METHYL-4,6-DINITROPHENOL	34650
50000	UG/KG	PENTACHLOROPHENOL	34061
50000	UG/KG	4-NITROPHENOL	34649
70	UG/KG	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, RFG IV
ATHENS GEORGIA

01/18/84

EXTRACTABLE ORGANIC ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 84C 415 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION 1, D.: 22-1(3) COMPOSITE OF SOIL SEEP DRAINAGE BASIN
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1520
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUHITT
SEALED: YES

CHEMIST:
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TSB DATA VERIFIED BY:

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS IN: UG/KG COMPOUND NAME
1200000 BENZOIC ACID
50000 DICHLOROTOLUENE
50000 TRICHLOROTOLUENE

FOOTNOTES

*A-AVERAGE VALUE *NA-NOT ANALYZED *AI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, REG IV
ATHENS GEORGIA

12/00/83 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 84C 411 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION 1.0: PM-4C CONTROL SOIL SAMPLE APP. 30' BEHIND RESTROOM
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1230
STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE RECD: DATE/TIME 11/22/83 1425 RECD BY: D COLQUITT
RELEND: YES

CHEMIST: HLR
ANALYTICAL METHOD:

REMARK:

SAMPLE LOG VERIFIED BY: TRB DATA VERIFIED BY: HLR

REMARKS

FOOTNOTES

- 1. AVERAGE VALUE *NA=NOT ANALYZED *NAI=INTERFERENCES OF MATERIAL
- 2. ESTIMATED VALUE *N=PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
- 3. ACTUAL VALUE IS GIVEN TO BE LESS THAN VALUE GIVEN
- 4. MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
- 5. THE MINIMUM DETECTION LIMIT
- 6. WHEN TWO VALUES ARE REPORTED, SEE CHLORDANE CONSTITUENTS.
- 7. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
3.4	UG/KG	ALDRIN	39333
6.0	UG/KG	HEPTACHLOR EPOXIDE	39413
6.0	UG/KG	HEPTACHLOR	39423
6.0	UG/KG	BETA-BHC	39076
6.0	UG/KG	GAMMA-BHC	39423
6.0	UG/KG	DELTA-BHC (LINDANE)	39423
6.0	UG/KG	ENDOSULFAN I (ALPHA)	39436
6.0	UG/KG	DELORIN	39333
1.0	UG/KG	DDT (P,P'-DDT)	39333
1.0	UG/KG	DDT (P,P'-DDE)	39333
2.3	UG/KG	DDT (P,P'-DDD)	39333
2.3	UG/KG	ENDRIN	39333
1.0	UG/KG	ENDOSULFAN II (BETA)	39333
1.0	UG/KG	CHLORDANE (TECH MIXTURE)	39333
5.0	UG/KG	PCB-1242 (AROCOR 1242)	39333
5.0	UG/KG	PCB-1254 (AROCOR 1254)	39333
5.0	UG/KG	PCB-1221 (AROCOR 1221)	39333
5.0	UG/KG	PCB-1232 (AROCOR 1232)	39333
5.0	UG/KG	PCB-1243 (AROCOR 1243)	39333
5.0	UG/KG	PCB-1246 (AROCOR 1246)	39333
5.0	UG/KG	PCB-1249 (AROCOR 1249)	39333
5.0	UG/KG	PCB-1250 (AROCOR 1250)	39333
5.0	UG/KG	PCB-1251 (AROCOR 1251)	39333
5.0	UG/KG	PCB-1252 (AROCOR 1252)	39333
5.0	UG/KG	PCB-1253 (AROCOR 1253)	39333
5.0	UG/KG	PCB-1254 (AROCOR 1254)	39333
5.0	UG/KG	PCB-1255 (AROCOR 1255)	39333
5.0	UG/KG	PCB-1256 (AROCOR 1256)	39333
5.0	UG/KG	PCB-1257 (AROCOR 1257)	39333
5.0	UG/KG	PCB-1258 (AROCOR 1258)	39333
5.0	UG/KG	PCB-1259 (AROCOR 1259)	39333
5.0	UG/KG	PCB-1260 (AROCOR 1260)	39333
5.0	UG/KG	PCB-1261 (AROCOR 1261)	39333
5.0	UG/KG	PCB-1262 (AROCOR 1262)	39333
5.0	UG/KG	PCB-1263 (AROCOR 1263)	39333
5.0	UG/KG	PCB-1264 (AROCOR 1264)	39333
5.0	UG/KG	PCB-1265 (AROCOR 1265)	39333
5.0	UG/KG	PCB-1266 (AROCOR 1266)	39333
5.0	UG/KG	PCB-1267 (AROCOR 1267)	39333
5.0	UG/KG	PCB-1268 (AROCOR 1268)	39333
5.0	UG/KG	PCB-1269 (AROCOR 1269)	39333
5.0	UG/KG	PCB-1270 (AROCOR 1270)	39333
5.0	UG/KG	PCB-1271 (AROCOR 1271)	39333
5.0	UG/KG	PCB-1272 (AROCOR 1272)	39333
5.0	UG/KG	PCB-1273 (AROCOR 1273)	39333
5.0	UG/KG	PCB-1274 (AROCOR 1274)	39333
5.0	UG/KG	PCB-1275 (AROCOR 1275)	39333
5.0	UG/KG	PCB-1276 (AROCOR 1276)	39333
5.0	UG/KG	PCB-1277 (AROCOR 1277)	39333
5.0	UG/KG	PCB-1278 (AROCOR 1278)	39333
5.0	UG/KG	PCB-1279 (AROCOR 1279)	39333
5.0	UG/KG	PCB-1280 (AROCOR 1280)	39333
5.0	UG/KG	PCB-1281 (AROCOR 1281)	39333
5.0	UG/KG	PCB-1282 (AROCOR 1282)	39333
5.0	UG/KG	PCB-1283 (AROCOR 1283)	39333
5.0	UG/KG	PCB-1284 (AROCOR 1284)	39333
5.0	UG/KG	PCB-1285 (AROCOR 1285)	39333
5.0	UG/KG	PCB-1286 (AROCOR 1286)	39333
5.0	UG/KG	PCB-1287 (AROCOR 1287)	39333
5.0	UG/KG	PCB-1288 (AROCOR 1288)	39333
5.0	UG/KG	PCB-1289 (AROCOR 1289)	39333
5.0	UG/KG	PCB-1290 (AROCOR 1290)	39333
5.0	UG/KG	PCB-1291 (AROCOR 1291)	39333
5.0	UG/KG	PCB-1292 (AROCOR 1292)	39333
5.0	UG/KG	PCB-1293 (AROCOR 1293)	39333
5.0	UG/KG	PCB-1294 (AROCOR 1294)	39333
5.0	UG/KG	PCB-1295 (AROCOR 1295)	39333
5.0	UG/KG	PCB-1296 (AROCOR 1296)	39333
5.0	UG/KG	PCB-1297 (AROCOR 1297)	39333
5.0	UG/KG	PCB-1298 (AROCOR 1298)	39333
5.0	UG/KG	PCB-1299 (AROCOR 1299)	39333
5.0	UG/KG	PCB-1300 (AROCOR 1300)	39333
5.0	UG/KG	PCB-1301 (AROCOR 1301)	39333
5.0	UG/KG	PCB-1302 (AROCOR 1302)	39333
5.0	UG/KG	PCB-1303 (AROCOR 1303)	39333
5.0	UG/KG	PCB-1304 (AROCOR 1304)	39333
5.0	UG/KG	PCB-1305 (AROCOR 1305)	39333
5.0	UG/KG	PCB-1306 (AROCOR 1306)	39333
5.0	UG/KG	PCB-1307 (AROCOR 1307)	39333
5.0	UG/KG	PCB-1308 (AROCOR 1308)	39333
5.0	UG/KG	PCB-1309 (AROCOR 1309)	39333
5.0	UG/KG	PCB-1310 (AROCOR 1310)	39333
5.0	UG/KG	PCB-1311 (AROCOR 1311)	39333
5.0	UG/KG	PCB-1312 (AROCOR 1312)	39333
5.0	UG/KG	PCB-1313 (AROCOR 1313)	39333
5.0	UG/KG	PCB-1314 (AROCOR 1314)	39333
5.0	UG/KG	PCB-1315 (AROCOR 1315)	39333
5.0	UG/KG	PCB-1316 (AROCOR 1316)	39333
5.0	UG/KG	PCB-1317 (AROCOR 1317)	39333
5.0	UG/KG	PCB-1318 (AROCOR 1318)	39333
5.0	UG/KG	PCB-1319 (AROCOR 1319)	39333
5.0	UG/KG	PCB-1320 (AROCOR 1320)	39333
5.0	UG/KG	PCB-1321 (AROCOR 1321)	39333
5.0	UG/KG	PCB-1322 (AROCOR 1322)	39333
5.0	UG/KG	PCB-1323 (AROCOR 1323)	39333
5.0	UG/KG	PCB-1324 (AROCOR 1324)	39333
5.0	UG/KG	PCB-1325 (AROCOR 1325)	39333
5.0	UG/KG	PCB-1326 (AROCOR 1326)	39333
5.0	UG/KG	PCB-1327 (AROCOR 1327)	39333
5.0	UG/KG	PCB-1328 (AROCOR 1328)	39333
5.0	UG/KG	PCB-1329 (AROCOR 1329)	39333
5.0	UG/KG	PCB-1330 (AROCOR 1330)	39333
5.0	UG/KG	PCB-1331 (AROCOR 1331)	39333
5.0	UG/KG	PCB-1332 (AROCOR 1332)	39333
5.0	UG/KG	PCB-1333 (AROCOR 1333)	39333
5.0	UG/KG	PCB-1334 (AROCOR 1334)	39333
5.0	UG/KG	PCB-1335 (AROCOR 1335)	39333
5.0	UG/KG	PCB-1336 (AROCOR 1336)	39333
5.0	UG/KG	PCB-1337 (AROCOR 1337)	39333
5.0	UG/KG	PCB-1338 (AROCOR 1338)	39333
5.0	UG/KG	PCB-1339 (AROCOR 1339)	39333
5.0	UG/KG	PCB-1340 (AROCOR 1340)	39333
5.0	UG/KG	PCB-1341 (AROCOR 1341)	39333
5.0	UG/KG	PCB-1342 (AROCOR 1342)	39333
5.0	UG/KG	PCB-1343 (AROCOR 1343)	39333
5.0	UG/KG	PCB-1344 (AROCOR 1344)	39333
5.0	UG/KG	PCB-1345 (AROCOR 1345)	39333
5.0	UG/KG	PCB-1346 (AROCOR 1346)	39333
5.0	UG/KG	PCB-1347 (AROCOR 1347)	39333
5.0	UG/KG	PCB-1348 (AROCOR 1348)	39333
5.0	UG/KG	PCB-1349 (AROCOR 1349)	39333
5.0	UG/KG	PCB-1350 (AROCOR 1350)	39333
5.0	UG/KG	PCB-1351 (AROCOR 1351)	39333
5.0	UG/KG	PCB-1352 (AROCOR 1352)	39333
5.0	UG/KG	PCB-1353 (AROCOR 1353)	39333
5.0	UG/KG	PCB-1354 (AROCOR 1354)	39333
5.0	UG/KG	PCB-1355 (AROCOR 1355)	39333
5.0	UG/KG	PCB-1356 (AROCOR 1356)	39333
5.0	UG/KG	PCB-1357 (AROCOR 1357)	39333
5.0	UG/KG	PCB-1358 (AROCOR 1358)	39333
5.0	UG/KG	PCB-1359 (AROCOR 1359)	39333
5.0	UG/KG	PCB-1360 (AROCOR 1360)	39333
5.0	UG/KG	PCB-1361 (AROCOR 1361)	39333
5.0	UG/KG	PCB-1362 (AROCOR 1362)	39333
5.0	UG/KG	PCB-1363 (AROCOR 1363)	39333
5.0	UG/KG	PCB-1364 (AROCOR 1364)	39333
5.0	UG/KG	PCB-1365 (AROCOR 1365)	39333
5.0	UG/KG	PCB-1366 (AROCOR 1366)	39333
5.0	UG/KG	PCB-1367 (AROCOR 1367)	39333
5.0	UG/KG	PCB-1368 (AROCOR 1368)	39333
5.0	UG/KG	PCB-1369 (AROCOR 1369)	39333
5.0	UG/KG	PCB-1370 (AROCOR 1370)	39333
5.0	UG/KG	PCB-1371 (AROCOR 1371)	39333
5.0	UG/KG	PCB-1372 (AROCOR 1372)	39333
5.0	UG/KG	PCB-1373 (AROCOR 1373)	39333
5.0	UG/KG	PCB-1374 (AROCOR 1374)	39333
5.0	UG/KG	PCB-1375 (AROCOR 1375)	39333
5.0	UG/KG	PCB-1376 (AROCOR 1376)	39333
5.0	UG/KG	PCB-1377 (AROCOR 1377)	39333
5.0	UG/KG	PCB-1378 (AROCOR 1378)	39333
5.0	UG/KG	PCB-1379 (AROCOR 1379)	39333
5.0	UG/KG	PCB-1380 (AROCOR 1380)	39333
5.0	UG/KG	PCB-1381 (AROCOR 1381)	39333
5.0	UG/KG	PCB-1382 (AROCOR 1382)	39333
5.0	UG/KG	PCB-1383 (AROCOR 1383)	39333
5.0	UG/KG	PCB-1384 (AROCOR 1384)	39333
5.0	UG/KG	PCB-1385 (AROCOR 1385)	39333
5.0	UG/KG	PCB-1386 (AROCOR 1386)	39333
5.0	UG/KG	PCB-1387 (AROCOR 1387)	39333
5.0	UG/KG	PCB-1388 (AROCOR 1388)	39333
5.0	UG/KG	PCB-1389 (AROCOR 1389)	39333
5.0	UG/KG	PCB-1390 (AROCOR 1390)	39333
5.0	UG/KG	PCB-1391 (AROCOR 1391)	39333
5.0	UG/KG	PCB-1392 (AROCOR 1392)	39333
5.0	UG/KG	PCB-1393 (AROCOR 1393)	39333
5.0	UG/KG	PCB-1394 (AROCOR 1394)	39333
5.0	UG/KG	PCB-1395 (AROCOR 1395)	39333
5.0	UG/KG	PCB-1396 (AROCOR 1396)	39333
5.0	UG/KG	PCB-1397 (AROCOR 1397)	39333
5.0	UG/KG	PCB-1398 (AROCOR 1398)	39333
5.0	UG/KG	PCB-1399 (AROCOR 1399)	39333
5.0	UG/KG	PCB-1400 (AROCOR 1400)	39333
5.0	UG/KG	PCB-1401 (AROCOR 1401)	39333
5.0	UG/KG	PCB-1402 (AROCOR 1402)	39333
5.0	UG/KG	PCB-1403 (AROCOR 1403)	39333
5.0	UG/KG	PCB-1404 (AROCOR 1404)	39333
5.0	UG/KG	PCB-1405 (AROCOR 1405)	39333
5.0	UG/KG	PCB-1406 (AROCOR 1406)	39333
5.0	UG/KG	PCB-1407 (AROCOR 1407)	39333
5.0	UG/KG	PCB-1408 (AROCOR 1408)	39333
5.0	UG/KG	PCB-1409 (AROCOR 1409)	39333
5.0	UG/KG	PCB-1410 (AROCOR 1410)	39333
5.0	UG/KG	PCB-1411 (AROCOR 1411)	39333
5.0	UG/KG	PCB-1412 (AROCOR 1412)	39333
5.0	UG/KG	PCB-1413 (AROCOR 1413)	39333
5.0	UG/KG	PCB-1414 (AROCOR 1414)	39333
5.0	UG/KG	PCB-1415 (AROCOR 1415)	39333
5.0	UG/KG	PCB-1416 (AROCOR 1416)	39333
5.0	UG/KG	PCB-1417 (AROCOR 1417)	39333
5.0	UG/KG	PCB-1418 (AROCOR 1418)	39333
5.0	UG/KG	PCB-1419 (AROCOR 1419)	39333
5.0	UG/KG	PCB-1420 (AROCOR 1420)	39333
5.0	UG/KG	PCB-1421 (AROCOR 1421)	39333
5.0	UG/KG	PCB-1422 (AROCOR 1422)	39333
5.0	UG/KG	PCB-1423 (AROCOR 1423)	39333
5.0	UG/KG	PCB-1424 (AROCOR 1424)	39333
5.0	UG/KG	PCB-1425 (AROCOR 1425)	39333
5.0	UG/KG	PCB-1426 (AROCOR 1426)	39333
5.0	UG/KG	PCB-1427 (AROCOR 1427)	39333
5.0	UG/KG	PCB-1428 (AROCOR 1428)	39333
5.0	UG/KG	PCB-1429 (AROCOR 1429)	39333
5.0	UG/KG	PCB-1430 (AROCOR 1430)	39333
5.0	UG/KG	PCB-1431 (AROCOR 1431)	39333
5.0	UG/KG	PCB-1432 (AROCOR 1432)	39333
5.0	UG/KG	PCB-1433 (AROCOR 1433)	39333
5.0	UG/KG	PCB-1434 (AROCOR 1434)	39333
5.0	UG/KG	PCB-1435 (AROCOR 1435)	39333
5.0	UG/KG	PCB-1436 (AROCOR 1436)	39333
5.0	UG/KG	PCB-1437 (AROCOR 1437)	39333
5.0	UG/KG	PCB-1438 (AROCOR 1438)	39333
5.0	UG/KG	PCB-1439 (AROCOR 1439)	39333
5.0	UG/KG	PCB-1440 (AROCOR 1440)	39333
5.0	UG/KG	PCB-1441 (AROCOR 1441)	39333
5.0	UG/KG	PCB-1442 (AROCOR 1442)	39333
5.0	UG/KG	PCB-1443 (AROCOR 1443)	39333
5.0	UG/KG	PCB-1444 (AROCOR 1444)	39333

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, REG. IV
ATHENS, GEORGIA

12/09/83 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 84C 412 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: FINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION 1: D1 P-3 COMPOSITE OF PLAYGROUND SURFACE SOIL
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1245
SAMPLE COLLECTION: STOP DATE/TIME 11/21/83 1310

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: HUP
ANALYTICAL METHOD:

REMARK:

SAMPLE LOG VERIFIED BY: TRB DATA VERIFIED BY: HLR

REMARKS

FOOTNOTES
1. AVERAGE VALUE **NA-NOT ANALYZED **NAI-INTERFERENCES OF MATERIAL
2. ESTIMATED VALUE **PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
3. K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
4. MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT
5. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS.
6. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

RESULTS	UNITS	COMPOUND	ANALYTICAL RESULTS
9U	UG/KG	ALDRIN	
9U	UG/KG	HEPTACHLOR EPOXIDE	
9U	UG/KG	HEPTACHLOR	
9U	UG/KG	ALPHA-BHC	
9U	UG/KG	BETA-BHC	
9U	UG/KG	GAMMA-BHC	(LINDANE)
9U	UG/KG	DELTA-BHC	
9U	UG/KG	ENDOSULFAN I (ALPHA)	
9U	UG/KG	ENDOSULFAN II (BETA)	
10U	UG/KG	DIELDRIN	
10U	UG/KG	4,4'-DDT	(P,P'-DDT)
10U	UG/KG	4,4'-DDE	(P,P'-DDE)
10U	UG/KG	4,4'-DDD	(P,P'-DDD)
10U	UG/KG	ENDRIN	
10U	UG/KG	ENDOSULFAN SULFATE	
10U	UG/KG	CHLORDANE (TECH MIXTURE)	/1
10U	UG/KG	PCB-1242 (AROCLO 1242)	
10U	UG/KG	PCB-1254 (AROCLO 1254)	
10U	UG/KG	PCB-1224 (AROCLO 1224)	
10U	UG/KG	PCB-1232 (AROCLO 1232)	
10U	UG/KG	PCB-1248 (AROCLO 1248)	
10U	UG/KG	PCB-1260 (AROCLO 1260)	
10U	UG/KG	PCB-1016 (AROCLO 1016)	
10U	UG/KG	TOXAPHENE	
10U	UG/KG	ENDRIN ACDEHYDE	
10U	UG/KG	2,3,7,8-TCDD(DIOXIN)	
NA	UG/KG	CHLORDANE /2	
---	UG/KG	ALPHA-CHLORDANE /2	
---	UG/KG	GAMMA-CHLORDANE /2	
---	UG/KG	1-HYDROXYCHLORDANE /2	
---	UG/KG	GAMMA-CHLORDANE /2	
---	UG/KG	TRANS-NONACHLOR /2	
---	UG/KG	ALPHA-CHLORDANE /2	
---	UG/KG	CIS-NONACHLOR /2	
---	UG/KG	METHOXYCHLOR	
30U	UG/KG	MOISTURE	
30U			

STORET
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD REG IV
ATHENS GEORGIA

12/09/83 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO. 1 H4C 413 SAMPLE TYPE: SEDIM

PROJECT NO.: H4-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION 100: P-2(0) APP 100' DOWNGRADIANT OF SEEP MANHOLE
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1425
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: HLR
ANALYTICAL METHOD:

REMARKS:

SAMPLE LOG VERIFIED BY: THH DATA VERIFIED BY: HLR

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-JESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT
1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS.
2. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORY
200	UG/KG	ALDRIN	39333
200	UG/KG	HEPTACHLOR	39413
200	UG/KG	HEPTACHLOR EPOXIDE	39076
200	UG/KG	ALPHA-BHC	34257
200	UG/KG	BETA-BHC	39343
200	UG/KG	GAMMA-BHC (LINDANE)	34262
200	UG/KG	DELTA-BHC	34394
200	UG/KG	ENDOSULFAN I (ALPHA)	39301
200	UG/KG	DIELDRIN	39321
100	UG/KG	4,4'-DDT (P,P'-DDT)	39311
100	UG/KG	4,4'-DDE (P,P'-DDE)	39393
400	UG/KG	4,4'-DDD (P,P'-DDD)	39354
100	UG/KG	ENDOSULFAN II (BETA)	39351
100	UG/KG	ENDOSULFAN SULFATE	34359
1000	UG/KG	CHLORDANE (TECH MIXTURE)	39351
2000	UG/KG	PCB-1242 (AROCLOH 1242)	39507
2000	UG/KG	PCB-1254 (AROCLOH 1254)	39491
2000	UG/KG	PCB-1231 (AROCLOH 1231)	39503
2000	UG/KG	PCB-1232 (AROCLOH 1232)	39511
2000	UG/KG	PCB-1248 (AROCLOH 1248)	39514
2000	UG/KG	PCB-1260 (AROCLOH 1260)	39403
7000	UG/KG	PCB-1016 (AROCLOH 1016)	34678
100	UG/KG	TOXAPHENE	81765
NA	UG/KG	ENDRIN ALDEHYDE	
NA	UG/KG	2,3,7,8 TCDD(DIOXIN)	
---	UG/KG	CHLORDANE /2	
---	UG/KG	ALPHA-CHLORDANE /2	
---	UG/KG	GAMMA-CHLORDANE /2	
---	UG/KG	1-HYDROXYCHLORDANE /2	
---	UG/KG	GAMMA-CHLORDANE /2	
---	UG/KG	TRANS-NONACHLOR /2	
---	UG/KG	ALPHA-CHLORDANE /2	
---	UG/KG	CIS-NONACHLOR /2	
500	UG/KG	METHOXYCHLOR	
49	UG/KG	MOISTURE	

39811
39073
39070
39481
70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-RSD REGION IV
ATHENS GEORGIA

12/09/83 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 84C 415 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: ATLANTA GA STATE: IN

STATION ID: P-1(0) COMPOSITE OF SOIL SEEP DRAINAGE BASIN
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1520
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: HLR
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: HLR

LABORATORY:

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
300	UG/KG	ALDRIN	39333
300	UG/KG	HEPTACHLOR EPOXIDE	39413
300	UG/KG	HEPTACHLOR BHC	39423
300	UG/KG	BETA-BHC	39076
300	UG/KG	GAMMA-BHC (LINDANE)	34257
300	UG/KG	DELTA-BHC	39343
300	UG/KG	ENDOSULFAN I (ALPHA)	34262
300	UG/KG	DELDRIN	34384
300	UG/KG	4,4'-DDT (P,P'-DDT)	39301
300	UG/KG	4,4'-DDE (P,P'-DDE)	39321
300	UG/KG	4,4'-DDD (P,P'-DDD)	39311
700	UG/KG	ENDRIN	39393
300	UG/KG	ENDOSULFAN II (BETA)	34354
300	UG/KG	ENDOSULFAN SULFATE	34359
2000	UG/KG	CHLORDANE (TECH MIXTURE) /1	39351
3000	UG/KG	PCB-1242 (AROCCLOR 1242)	39499
3000	UG/KG	PCB-1254 (AROCCLOR 1254)	39507
3000	UG/KG	PCB-1231 (AROCCLOR 1231)	39491
3000	UG/KG	PCB-1232 (AROCCLOR 1232)	39495
3000	UG/KG	PCB-1248 (AROCCLOR 1248)	39511
3000	UG/KG	PCB-1260 (AROCCLOR 1260)	39514
10000	UG/KG	PCB-1016 (AROCCLOR 1016)	39403
300	UG/KG	TOXAPHENE	34369
NA	UG/KG	ENDRIN ALDEHYDE	34678
---	UG/KG	2,3,7,8 TCDD(DIOXIN)	61765
---	UG/KG	CHLORDANE /2	
---	UG/KG	ALPHA-CHLORDANE /2	
---	UG/KG	GAMMA-CHLORDANE /2	
---	UG/KG	1-HYDROXYCHLORDANE /2	
---	UG/KG	GAMMA-CHLORDANE /2	
---	UG/KG	TRANS-CHLORDANE /2	
---	UG/KG	ALPHA-CHLORDANE /2	
---	UG/KG	CIS-NONACHLOR	
900	UG/KG	METHOXYCHLOR	
70	UG/KG	MOISTURE	

FOOTNOTES
 *A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
 *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
 *K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
 *U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
 THE MINIMUM DETECTION LIMIT.
 1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS.
 2. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
FPA-P&D, REG IV
ATHENS GEORGIA

01/11/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 84C 411 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION I.D.: PA-4C CONTROL SOIL SAMPLE APP, 30' BEHIND RESTROOM
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1230
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLOUITT
SEALED: YES

CHEMIST: FRA
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THH SAMPLE DATA VERIFIED BY: FRA

REMARKS

FOOTNOTES

*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
NA	UG/KG	ACROLEIN	34213
NA	UG/KG	ACRYLONITRILE	34218
6U	UG/KG	CHLOROMETHANE	34421
6U	UG/KG	BROMOMETHANE	34416
6U	UG/KG	VINYL CHLORIDE	34495
6U	UG/KG	CHLOROETHANE	34314
6U	UG/KG	METHYLENE CHLORIDE	34426
6U	UG/KG	1,1-DICHLOROETHENE	34504
6U	UG/KG	1,1-DICHLOROETHANE	34499
6U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
6U	UG/KG	CHLOROFORM	34318
6U	UG/KG	1,2-DICHLOROETHANE	34534
6U	UG/KG	1,1,1-TRICHLOROETHANE	34509
6U	UG/KG	CARBON TETRACHLORIDE	34299
6U	UG/KG	BROMODICHLOROMETHANE	34330
6U	UG/KG	1,2-DICHLOROPROPANE	34544
6U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
6U	UG/KG	TRICHLOROETHENE	34487
6U	UG/KG	BENZENE	34237
6U	UG/KG	DIBROMOCHLOROMETHANE	34309
6U	UG/KG	1,1,2-TRICHLOROETHANE	34514
6U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
6U	UG/KG	2-CHLOROETHYL VINYL ETHER	34579
6U	UG/KG	BROMOFORM	34290
6U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
6U	UG/KG	TETRACHLOROETHENE	34478
6U	UG/KG	TOLUENE	34483
6U	UG/KG	CHLOROBENZENE	34304
6U	UG/KG	ETHYL BENZENE	34374
6U	UG/KG	M-XYLENE	
6U	UG/KG	O&P-XYLENE(MIXED)	
21	%	MOISTURE	70320

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, REG IV
ATHENS GEORGIA

01/11/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: R4C 412 SAMPLE TYPE: SOIL

PROJECT NO.: R4-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION I.D.: Pw--3 COMPOSITE OF PLAYGROUND SURFACE SOIL
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1245
SAMPLE COLLECTION: STOP DATE/TIME 11/21/83 1310

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: FRA
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THB SAMPLE DATA VERIFIED BY: FRA

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
NA	UG/KG	ACROLEIN	34213
NA	UG/KG	ACRYLONITRILE	34218
7U	UG/KG	CHLOROMETHANE	34421
7U	UG/KG	BROMOMETHANE	34416
7U	UG/KG	VINYL CHLORIDE	34495
7U	UG/KG	CHLOROETHANE	34314
7U	UG/KG	METHYLENE CHLORIDE	34426
7U	UG/KG	1,1-DICHLOROETHENE	34504
7U	UG/KG	1,1-DICHLOROETHANE	34499
7U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
7U	UG/KG	CHLOROFORM	34318
7U	UG/KG	1,2-DICHLOROETHANE	34534
7U	UG/KG	1,1,1-TRICHLOROETHANE	34509
7U	UG/KG	CARBON TETRACHLORIDE	34299
7U	UG/KG	BROMODICHLOROMETHANE	34330
7U	UG/KG	1,2-DICHLOROPROPANE	34544
7U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
7U	UG/KG	TRICHLOROETHENE	34487
7U	UG/KG	BENZENE	34237
7U	UG/KG	DIBROMOCHLOROMETHANE	34309
7U	UG/KG	1,1,2-TRICHLOROETHANE	34514
7U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
7U	UG/KG	2-CHLOROETHYL VINYL ETHER	34579
7U	UG/KG	BROMOFORM	34290
7U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
7U	UG/KG	TETRACHLOROETHENE	34478
7U	UG/KG	TOLUENE	34483
7U	UG/KG	CHLOROBENZENE	34304
7U	UG/KG	ETHYL BENZENE	34374
7U	UG/KG	M-XYLENE	
7U	UG/KG	O&P-XYLENE(MIXED)	
32	%	MOISTURE	70320

FOOTNOTES

*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-RSD, REG IV
ATHENS GEORGIA

01/11/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: R4C 413 SAMPLE TYPE: SEDIM

PROJECT NO.: R4-017 PROGRAM ELEMENT: NSF
SOURCE: PIPEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION I.D.: PR-2(0) APP 100' DOWNGRADE OF SEEP MANHOLE
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1425
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: FRA
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TB8 SAMPLE DATA VERIFIED BY: FRA

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
NA	UG/KG	ACROLEIN	34213
NA	UG/KG	ACRYLONITRILE	34218
9U	UG/KG	CHLOROMETHANE	34421
9U	UG/KG	BROMOMETHANE	34416
9U	UG/KG	VINYL CHLORIDE	34495
9U	UG/KG	CHLOROETHANE	34314
9U	UG/KG	METHYLENE CHLORIDE	34426
9U	UG/KG	1,1-DICHLOROETHENE	34504
9U	UG/KG	1,1-DICHLOROETHANE	34499
9U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
9U	UG/KG	CHLOROFORM	34318
9U	UG/KG	1,2-DICHLOROETHANE	34514
9U	UG/KG	1,1,1-TRICHLOROETHANE	34509
9U	UG/KG	CARBON TETRACHLORIDE	34299
9U	UG/KG	BROMODICHLOROMETHANE	34330
9U	UG/KG	1,2-DICHLOROPROPANE	34544
9U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
9U	UG/KG	TRICHLOROETHENE	34487
9U	UG/KG	BENZENE	34217
9U	UG/KG	DIBROMOCHLOROMETHANE	34309
9U	UG/KG	1,1,2-TRICHLOROETHANE	34514
9U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
9U	UG/KG	2-CHLOROETHYL VINYL ETHER	34579
9U	UG/KG	BROMOFORM	34290
9U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
9U	UG/KG	TETRACHLOROETHENE	34478
9U	UG/KG	TOLUENE	34483
9U	UG/KG	CHLOROBENZENE	34304
9U	UG/KG	ETHYL BENZENE	34374
9U	UG/KG	M-XYLENE	
9U	UG/KG	O&P-XYLENE(MIXED)	
49	*	MOISTURE	70320

FOOTNOTES

*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-RSD, REG IV
ATHENS GEORGIA

01/11/84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 84C 415 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION I.D.: P4-1(0) COMPOSITE OF SOIL SEEP DRAINAGE BASIN
STREET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1520
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: FRA
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THB SAMPLE DATA VERIFIED BY: FRA

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
NA	UG/KG	ACROLEIN	34213
NA	UG/KG	ACRYLONITRILE	34218
16U	UG/KG	CHLOROMETHANE	34421
16U	UG/KG	BROMOMETHANE	34416
16U	UG/KG	VINYL CHLORIDE	34495
16U	UG/KG	CHLOROETHANE	34314
16U	UG/KG	METHYLENE CHLORIDE	34426
16U	UG/KG	1,1-DICHLOROETHENE	34504
16U	UG/KG	1,1-DICHLOROETHANE	34499
16U	UG/KG	TRANS-1,2-DICHLOROETHENE	34549
16U	UG/KG	CHLOROFORM	34318
16U	UG/KG	1,2-DICHLOROETHANE	34534
16U	UG/KG	1,1,1-TRICHLOROETHANE	34509
16U	UG/KG	CARBON TETRACHLORIDE	34299
16U	UG/KG	BROMODICHLOROETHANE	34330
16U	UG/KG	1,2-DICHLOROPROPANE	34544
16U	UG/KG	TRANS-1,3-DICHLOROPROPENE	34697
16U	UG/KG	TRICHLOROETHENE	34487
16U	UG/KG	BENZENE	34237
16U	UG/KG	DIBROMOCHLOROMETHANE	34309
16U	UG/KG	1,1,2-TRICHLOROETHANE	34514
16U	UG/KG	CIS-1,3-DICHLOROPROPENE	34702
16U	UG/KG	2-CHLOROETHYL VINYL ETHER	34579
16U	UG/KG	BROMOFORM	34290
16U	UG/KG	1,1,2,2-TETRACHLOROETHANE	34519
16U	UG/KG	TETRACHLOROETHENE	34478
16U	UG/KG	TOLUENE	34483
360	UG/KG	CHLOROBENZENE	34304
16U	UG/KG	ETHYL BENZENE	34374
16U	UG/KG	M-XYLENE	
62	UG/KG	O6P-XYLENE(MIXED)	
70	%	MOISTURE	70320

FOOTNOTES

*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-RSD, REG IV
ATHENS GEORGIA

*****ANALYTICAL RESULTS*****

RESULTS IN: UG/KG COMPOUND NAME
200J UNIDENTIFIED TERPENE
500JN CHLOROTOLUENE

01/11/84 PURGEABLE ORGANICS ANALYSIS, MISC
DATA REPORTING SHEET
SEDIMENT/SOIL/SLUDGE(DRY WT)

SAMPLE NO.: 84C 415 SAMPLE TYPE: SOIL

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION I.D.: PW-1(0) COMPOSITE OF SOIL SEEP DRAINAGE BASIN
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1520
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST:
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: THH DATA VERIFIED BY: FRA

LEAKS

FOOTNOTES

*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-RSD, REG IV
ATHENS GEORGIA

01/20/84

DETAILS
DATA REPORTING SHEET
WATER

SAMPLE NO.: 84C 414 SAMPLE TYPE: LEACH

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PILEY WOODS PLAYGROUND
CITY: CHATTAHOOGA STATE: TN

STATION 1.0: 25-2.00 AFF. 100' DOWNGRADE OF SEEP MANHOLE
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1400
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: NAW
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRH SAMPLE DATA VERIFIED BY: NAW

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	ELEMENT	STORET
100	UG/L	SILVER	01077
300	UG/L	ARSENIC	01002
NA	UG/L	BORON	01022
56	UG/L	BARIUM	01007
100	UG/L	BERYLLIUM	01012
100	UG/L	CADMIUM	01027
200	UG/L	COPALT	01037
100	UG/L	CHROMIUM	01034
100	UG/L	COPEER	01042
200	UG/L	POLYMERIDE	01062
200	UG/L	NICKEL	01067
300	UG/L	LEAD	01051
300	UG/L	ANTIMONY	01097
400	UG/L	SELENIUM	01147
1000	UG/L	TIN	01102
150	UG/L	STRONTIUM	01082
400	UG/L	TELLURUM	01064
12	UG/L	TITANIUM	01152
NA	UG/L	THALLIUM	01059
100	UG/L	VANADIUM	01087
100	UG/L	YTRIUM	01203
12	UG/L	ZINC	01092
NA	UG/L	ZIRCONIUM	01162
0.50	UG/L	MERCURY	71900
0.50	UG/L	ALUMINUM	01105
56	UG/L	MANGANESE	01055
90	UG/L	CALCIUM	00916
12	UG/L	MAGNESIUM	00927
0.0	UG/L	IRON	74010
16	UG/L	SODIUM	00929
NA	UG/L	CHLORINE, HEXAVALENT	01032

FOOTNOTES

- *A-AVERAGE VALUE
- *J-ESTIMATED VALUE
- *K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
- *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
- *U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM DETECTION LIMIT.
- *NA=NOT ANALYZED
- *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
- *AI-INTERFERENCES

***** ANALYTICAL RESULTS *****

C1'10/84

EXTRACTABLE ORGANIC ANALYSIS
DATA REPORTING SHEET
WATER

SAMPLE NO.: 84C 414 SAMPLE TYPE: LEACH

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION I.D.: P4-2SW APP. 100' DOWNGRADE OF SEEP MANHOLE
STORET STATION NO!

SAMPLE COLLECTION:	START DATE/TIME	11/21/83	1400
SAMPLE COLLECTION:	STOP DATE/TIME	00/00/00	

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUHITT
SEALED: YES

CHEMIST: CHH
ANALYTICAL METHOD: 625

REMARKS:

SAMPLE LOG VERIFIED BY: TBB DATA VERIFIED BY: CHH

REMARKS

 FOOTNOTES
 *A=AVERAGE VALUE *NA=NOT ANALYZED *NAI=INTERFERENCES
 *U=ESTIMATED VALUE *N=PRESUMPTIVE EVIDENCE OF PRESENCE OF MAT
 *K=ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
 *L=ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
 *U-ACTUAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
 THE MINIMUM DETECTION LIMIT.

RESULTS	UNITS	COMPOUND	STORE#
NA	UG/L	M-NITROSODIMETHYLAMINE	344368
NA	UG/L	M-DIPHENYLMHYDRAZINE/AZOBENZENE	344346
NA	UG/L	HENZIDINE	391200
100	UG/L	1,3-DICHLOROBENZENE	345711
100	UG/L	1,4-DICHLOROBENZENE	34536
100	UG/L	BIS(2-CHLOROETHYL) ETHER	34273
100	UG/L	HEXACHLOROCYCLOPENTADIENE	34396
100	UG/L	BIS(2-CHLOROETHYL) ETHER	34263
100	UG/L	BIS(2-CHLOROISOPROPYL) ETHER	34447
100	UG/L	M-NITROSODI-N-PROPYLAMINE	39702
100	UG/L	NITROBENZENE	34551
100	UG/L	HEXACHLOROBUTADIENE	34696
100	UG/L	1,2,4-TRICHLOROARENSE	34278
100	UG/L	NAPHTHALENE	34408
100	UG/L	BIS(2-CHLOROETHOXY) METHANE	34396
100	UG/L	TETRAPHORME	34581
100	UG/L	HEXACHLOROCYCLOPENTADIENE (HCCP)	34581
100	UG/L	2-CHLORONAPHTHALENE	34200
100	UG/L	ACENAPHTHENE	34205
100	UG/L	DIMETHYL PHTHALATE	34341
100	UG/L	2,4-DINITROTOLUENE	34011
100	UG/L	2,6-DINITROTOLUENE	34626
100	UG/L	4-CHLOROPHENYL PHENYL ETHER	34641
100	UG/L	FLOURENE	34341
100	UG/L	DIEHTYL PHTHALATE	34349
100	UG/L	M-NITROSODIPHENYLAMINE/DIPHENYLAMINE	34433
100	UG/L	HEXACHLOROBENZENE (HCB)	397000
100	UG/L	4-HAOMPHENYL PHENYL ETHER	34636
100	UG/L	PHTHANATRENE	34461
100	UG/L	ANTHRACENE	34220
100	UG/L	DI-N-BUTYLPHthalate	39110
100	UG/L	FLURANME	34376
100	UG/L	PIRENE	34469
100	UG/L	BENZYL BUTYL PHTHALATE	34292
100	UG/L	BIS(2-ETHYLHEXYL) PHTHALATE	39100
100	UG/L	BENZO(A)ANTHRACENE	34526
100	UG/L	CHRYSENE	34320
100	UG/L	3,3'-DICHLOROBENZIDINE	34631
100	UG/L	DI-M-OCTYLPHthalate	34594
100	UG/L	BENZO(K)FLUORANTHENE	34606
100	UG/L	BENZO-A-PYRENE	34521
100	UG/L	INDENO (1,2,3-CD) PYRENE	34591
100	UG/L	DIBENZO(A,H)ANTHRACENE	34601
100	UG/L	ZENZO(GHI)PERYLENE	34522
100	UG/L	2-CHLOROPHENOL	34616
100	UG/L	2-NITROPHENOL	34637
100	UG/L	PHENOL	34032
100	UG/L	2,4-DIMETHYLPHENOL	34040
100	UG/L	2,4-DICHLOROPHENOL	
100	UG/L	2,4,6-TRICHLOROPHENOL	
100	UG/L	4-CHLORO-3-METHYLPHENOL	
400	UG/L	2,4-DINITROPHENOL	
300	UG/L	2-METHYL-4,6-DINITROPHENOL	
300	UG/L	PENTACHLOROPHENOL	
200	UG/L	4-NITROPHENOL	

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, REG IV
ATHENS GEORGIA

01/18/84

EXTRACTABLE ORGANIC ANALYSIS, MISC
DATA REPORTING SHEET
WATER

SAMPLE NO.: 84C 414 SAMPLE TYPE: LEACH

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION I.D.: PW-2SW APP. 100' DOWNGRADIENT OF SEEP MANHOLE
STORET STATION: 000

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1400
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST:
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TBH DATA VERIFIED BY: CHH

REMARKS

FOOTNOTES

*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*L-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

*****ANALYTICAL RESULTS*****

RESULTS	IN: UG/L	COMPOUND NAME
10000		BENZOIC ACID
100		DICHLOROTOLUENE
100		TRICHLOROTOLUENE

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, REG IV
ATHENS, GEORGIA

12/09/83 PESTICIDES/PCB'S AND OTHER CHLORINATED COMPOUNDS
DATA REPORTING SHEET
WATER

SAMPLE NO.: 84C 414 SAMPLE TYPE: LEACH

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PIRBY WOODS PLAYGROUND STATE: TN
CITY: CHATTANOOGA

STATION: 1011 PW-2SW APP. 100' DOWNGRADIANT OF SEEP MANHOLE
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1400
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: AB
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: T88 DATA VERIFIED BY: HLR

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS
THE MINIMUM DETECTION LIMIT
1: WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS.
2: CONSTITUENTS OF METABOLITES OF TECHNICAL CHLORDANE.

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STOR#
0.030	UG/L	ALDRIN	39310
0.030	UG/L	HEPTACHLOR EPOXIDE	39310
0.030	UG/L	HEPTACHLOR	39310
0.030	UG/L	BETA-BHC	39310
0.030	UG/L	BETA-BHC (LINDANE)	39310
0.030	UG/L	GAMMA-BHC	39310
0.030	UG/L	DELTA-BHC	39310
0.080	UG/L	ENDOSULFAN I (ALPHA)	39310
0.080	UG/L	DIELDRIN	39310
0.030	UG/L	4,4'-DDT	39310
0.030	UG/L	4,4'-DDE	39310
0.030	UG/L	4,4'-DDD	39310
0.030	UG/L	ENDRIN	39310
0.030	UG/L	ENDOSULFAN II (BETA)	39310
0.030	UG/L	ENDOSULFAN SULFATE	39310
0.030	UG/L	CHLORDANE (TECH. MIXTURE)	39310
0.030	UG/L	PCB-1242	39310
0.030	UG/L	PCB-1254	39310
0.030	UG/L	PCB-1221	39310
0.030	UG/L	PCB-1232	39310
0.030	UG/L	PCB-1248	39310
0.030	UG/L	PCB-1260	39310
0.030	UG/L	PCB-1016	39310
0.030	UG/L	TOXAPHENE	39310
0.030	UG/L	ENDRIN ALDEHYDE	39310
0.030	UG/L	2,3,7,8-TCDD(DIOXIN)	39310
0.030	UG/L	CHLORDANE /2	39310
0.030	UG/L	ALPHA-CHLORDANE /2	39310
0.030	UG/L	GAMMA-CHLORDANE /2	39310
0.030	UG/L	1-HYDROXYCHLORDANE /2	39310
0.030	UG/L	GAMMA-CHLORDANE /2	39310
0.030	UG/L	TRANS-NONACHLOR /2	39310
0.030	UG/L	ALPHA-CHLORDANE /2	39310
0.030	UG/L	CYS-NONACHLOR	39310
0.030	UG/L	METHOXYCHLOR	39310

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-ESD, REG IV
ATHENS GEORGIA

01/1./84

PURGEABLE ORGANICS ANALYSIS
DATA REPORTING SHEET
WATER

SAMPLE NO.: 84C 414 SAMPLE TYPE: LEACH

PROJECT NO.: 84-017 PROGRAM ELEMENT: NSF
SOURCE: PINEY WOODS PLAYGROUND
CITY: CHATTANOOGA STATE: TN

STATION I.D.: Pw-28w APP. 100' DOWNGRADIENT OF SEEP MANHOLE
STORET STATION NO:

SAMPLE COLLECTION: START DATE/TIME 11/21/83 1400
SAMPLE COLLECTION: STOP DATE/TIME 00/00/00

COLLECTED BY: J KOPOTIC RECEIVED FROM: J KOPOTIC
SAMPLE REC'D: DATE/TIME 11/22/83 1425 REC'D BY: D COLQUITT
SEALED: YES

CHEMIST: FRA
ANALYTICAL METHOD:

REMARK:
REMARK:

SAMPLE LOG VERIFIED BY: TRB SAMPLE DATA VERIFIED BY: FRA

REMARKS

*****ANALYTICAL RESULTS*****

RESULTS	UNITS	COMPOUND	STORET
NA	UG/L	ACROLEIN	34210
NA	UG/L	ACRYLONITRILE	34215
5U	UG/L	CHLOROMETHANE	34418
5U	UG/L	BROMOMETHANE	34413
5U	UG/L	VINYL CHLORIDE	34175
5U	UG/L	CHLOROETHANE	34311
5U	UG/L	METHYLENE CHLORIDE	34423
5U	UG/L	1,1-DICHLOROETHENE	34501
5U	UG/L	1,1-DICHLOROETHANE	34496
5U	UG/L	TRANS-1,2-DICHLOROETHENE	34546
5U	UG/L	CHLOROFORM	32106
5U	UG/L	1,2-DICHLOROETHANE	32103
5U	UG/L	1,1,1-TRICHLOROETHANE	34506
5U	UG/L	CARBON TETRACHLORIDE	32102
5U	UG/L	BROMODICHLOROMETHANE	32101
5U	UG/L	1,2-DICHLOROPROPANE	34541
5U	UG/L	TRANS-1,3-DICHLOROPROPENE	34699
5U	UG/L	TRICHLOROETHENE	39180
5U	UG/L	BENZENE	78124
5U	UG/L	DIBROMOCHLOROMETHANE	34306
5U	UG/L	1,1,2-TRICHLOROETHANE	34511
5U	UG/L	CIS-1,3-DICHLOROPROPENE	34704
5U	UG/L	2-CHLOROETHYL VINYL ETHER	34576
5U	UG/L	BROMOFORM	32104
5U	UG/L	1,1,2,2-TETRACHLOROETHANE	34516
5U	UG/L	TETRACHLOROETHENE	34475
5U	UG/L	TOLUENE	78131
5U	UG/L	CHLOROBENZENE	34301
5U	UG/L	ETHYL BENZENE	34371
5U	UG/L	M-XYLENE	
5U	UG/L	O&P-XYLENE(MIXED)	

FOOTNOTES

*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES
*J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN
*L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED, THE NUMBER IS
THE MINIMUM DETECTION LIMIT.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: JAN 16 1981

SUBJECT: Hazardous Waste Site Investigation, Velsicol Residue Hill -
Piney Woods Playground, Chattanooga, Tennessee, June 26, 1980

FROM: Water Surveillance Branch

TO: See Below

Attached is the subject report.


James D. Kopotic

Attachment

Addressees:

Enforcement Division

Zeller

Patrick/Wallace

Green

Turnipseed

S&A Division

Finger/Adams

Carter/Lair

Carroll/Bennett

RECEIVED
EPA REGION IV
JAN 23 8 56 AM '81
DIVISION

HAZARDOUS WASTE SITE INVESTIGATION
VELSICOL RESIDUE HILL - PINEY WOODS PLAYGROUND
CHATTANOOGA, TENNESSEE
June 26, 1980

INTRODUCTION

The site, designated as Piney Woods Playground, is located south of Velsicol's Residue Hill dump (see aerial photo 1, and maps 2 and 3). The water from Piney Woods Spring, possibly contaminated from the waste dump, has been partially diverted into a storm sewer to be treated by Moccasin Bend Wastewater Treatment Plant. At the request of US-EPA, Region IV, Enforcement Division, S&A personnel Jim Kopotic and Carol Hough conducted an investigation at the site.

CONCLUSIONS

Varying concentrations of several aromatic compounds (benzene and benzene derivatives), pesticides, and metals were detected in the water samples collected from the Piney Woods Spring (PW-001) and ponded water south of the spring (PW-002). The ground was boggy along the southern boundary of the playground, and appeared that it would remain so even during dry periods. Children from the surrounding homes use the area quite extensively.

RESULTS AND DISCUSSION

Grab samples of water were collected at two sampling locations within the boundary of Piney Woods Playground during this investigation.

PW-001	Piney Woods Spring, north of the earthen dike, which was constructed to divert the flow into the storm sewer.
PW-002	Ponded water south of the earthen dike; possible seepage.

See pictures 1 and 2 for more information on the site and sampling locations.

All analyses, except for metals, phenols, and cyanides, were conducted by a contract laboratory. A summary of the analytical data is presented in Table 1. Complete analytical results and a copy of the sample field sheets are included in Appendix A.

The earthen dike, surrounding the spring, was constructed to prevent water from the spring from flowing downgradient over a low area and possibly into Chattanooga Creek; located directly south of Piney Woods Playground (see map 2). It could not be determined if the ponded water (PW-002) was seepage through the dike, another spring, or just standing water.

Several aromatic compounds were detected in both water samples at relatively high concentrations. Chlorobenzene (PW-001 - 885ug/l; PW-002 - 947 ug/l), toluene (PW-001 - 492 ug/l; PW-002 - 317 ug/l), and dichlorobenzene (PW-001 301 ug/l; PW-002 - 230 ug/l) were detected at the highest concentrations. Three isomers of BHC were detected in the water sample from the spring (maximum concentration 0.49 ug/l beta-BHC); only one isomer was detected in the water sample from the ponded area (beta-BHC, 0.13 ug/l). Metal concentrations were higher in the sample collected from the ponded area than from the spring. This could be attributed to the high turbidity and suspended solids in the water.

Velsicol Chemical Corporation, located just north of Piney Woods Playground manufacturers, or has in the past benzoic acid, benzyl, chloride, benzoyl alcohol, dibenzoate esters of glycols, benzoquanamine, sodium benzoate and benzotrichloride (see map 3). Dicamba, a chlorinated arylacid herbicide, was produced at the plant, but is no longer being manufactured there. The company's wastewater is discharged into Chattanooga's sewerage system. Benzoic acid, the major building chemical, is produced on site by reacting toluene with air. At one time several large ponds, used for waste disposal and acid neutralization, were located on Residue Hill. Recently these ponds have been capped over and groundwater monitoring wells have been installed. Velsicol's first quarterly groundwater quality analyses, along with a well location map, have been included as Appendix A.

All samples were grab samples collected in accordance with the Water Surveillance Branch Standard Operating Procedures and Quality Assurance Manual (4).

References

1. Chattanooga Creek Study, Chattanooga, Tennessee, U.S. Environmental Protection Agency, Region IV, Surveillance and Analysis Division, April, 1977.
2. Chattanooga Water Discharge, Part II, Downstream From The City Water Company, U.S. Environmental Protection Agency, Region IV, Surveillance and Analysis Division, July, 1973.
3. Hawley, Gessner, G., The Condensed Chemical Dictionary , Van Nostrand Reinhold Co., New York, 1971.
4. Water Surveillance Branch Standard Operating Procedures and Quality Assurance Manual (Draft), U.S. Environmental Protection Agency, Region IV, Surveillance and Analysis Division, August 29, 1980.

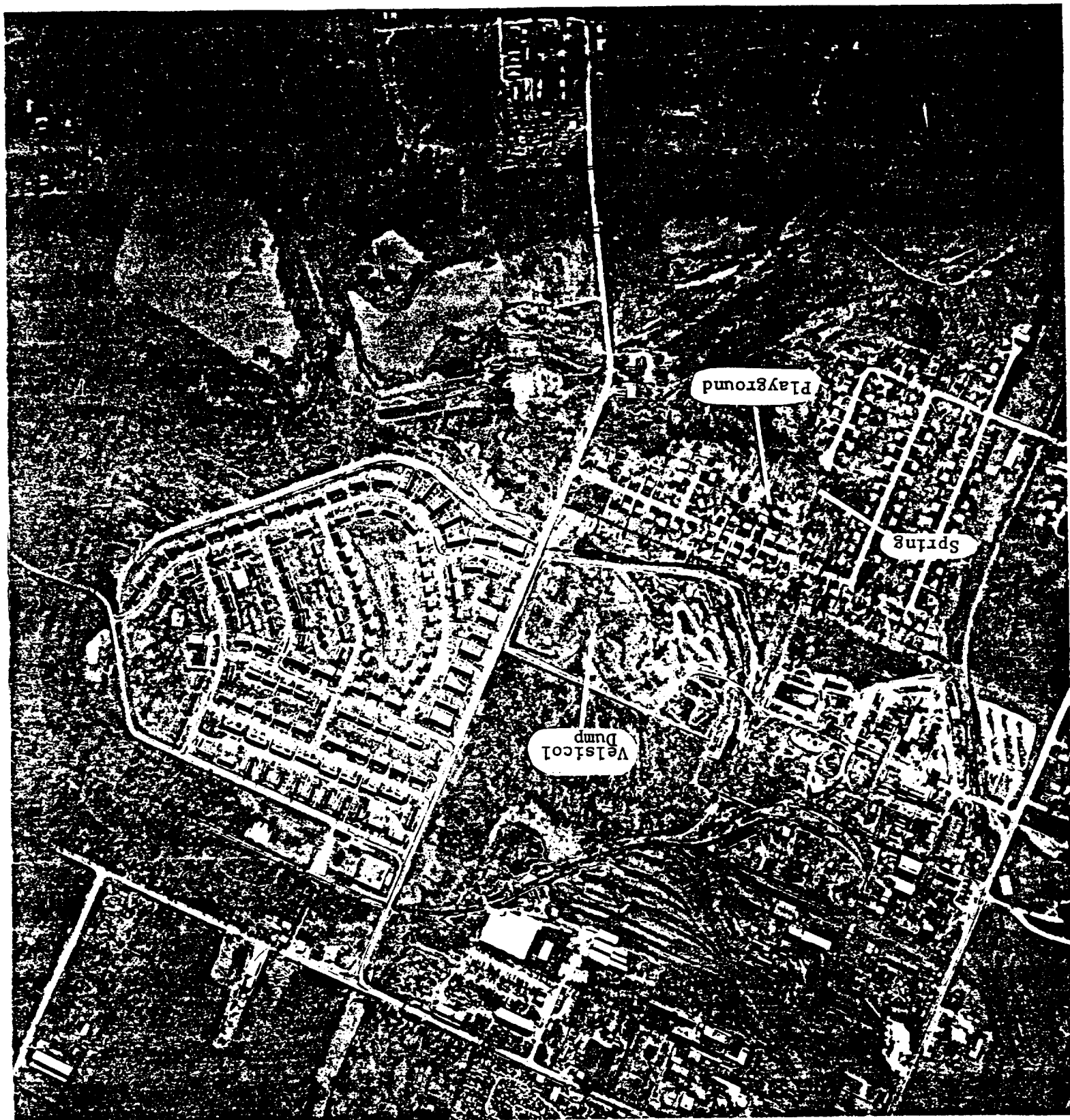
Table 1

DATA SUMMARY
 PINEY WOODS PLAYGROUND
 CHATTANOOGA, TENNESSEE

	WATER	
	PW-001 Piney Woods Springs beside man hole	PW-002 Left of earthen dike
<u>Volatile Organic Compounds</u>	<u>(ug/l)</u>	<u>(ug/l)</u>
Benzene	140	127
Chlorobenzene	885	947
Ethylbenzene	115	92
Toluene	492	317
<u>Pesticides/PCB's</u>	<u>(ug/l)</u>	<u>(ug/l)</u>
a- BHC-Alpha	0.15	
b- BHC-Beta	0.49	0.13
y- BHC-(Lindane)-Gamma	0.17	
<u>Extractable Organic Compounds</u>	<u>(ug/l)</u>	<u>(ug/l)</u>
1,4- Dichlorobenzene	301	230
Di -N- Butylphthalate	23	
Phenol	167	*
<u>Inorganic Elements</u>	<u>(ug/l)</u>	<u>(ug/l)</u>
Barium	207	580
Chromium	10 K	42
Copper	10 K	59
Nickel	20 K	36
Lead	25 K	130
Strontium	442	499
Titanium	20	318
Vanadium	10 K	71
Yttrium	10 K	45
Zinc	25	170
Aluminum	1100	58600
Manganese	6200	8000
	<u>(mg/l)</u>	<u>(mg/l)</u>
Calcium	202	220
Magnesium	33	42
Iron	8.3	78
Sodium	43	46

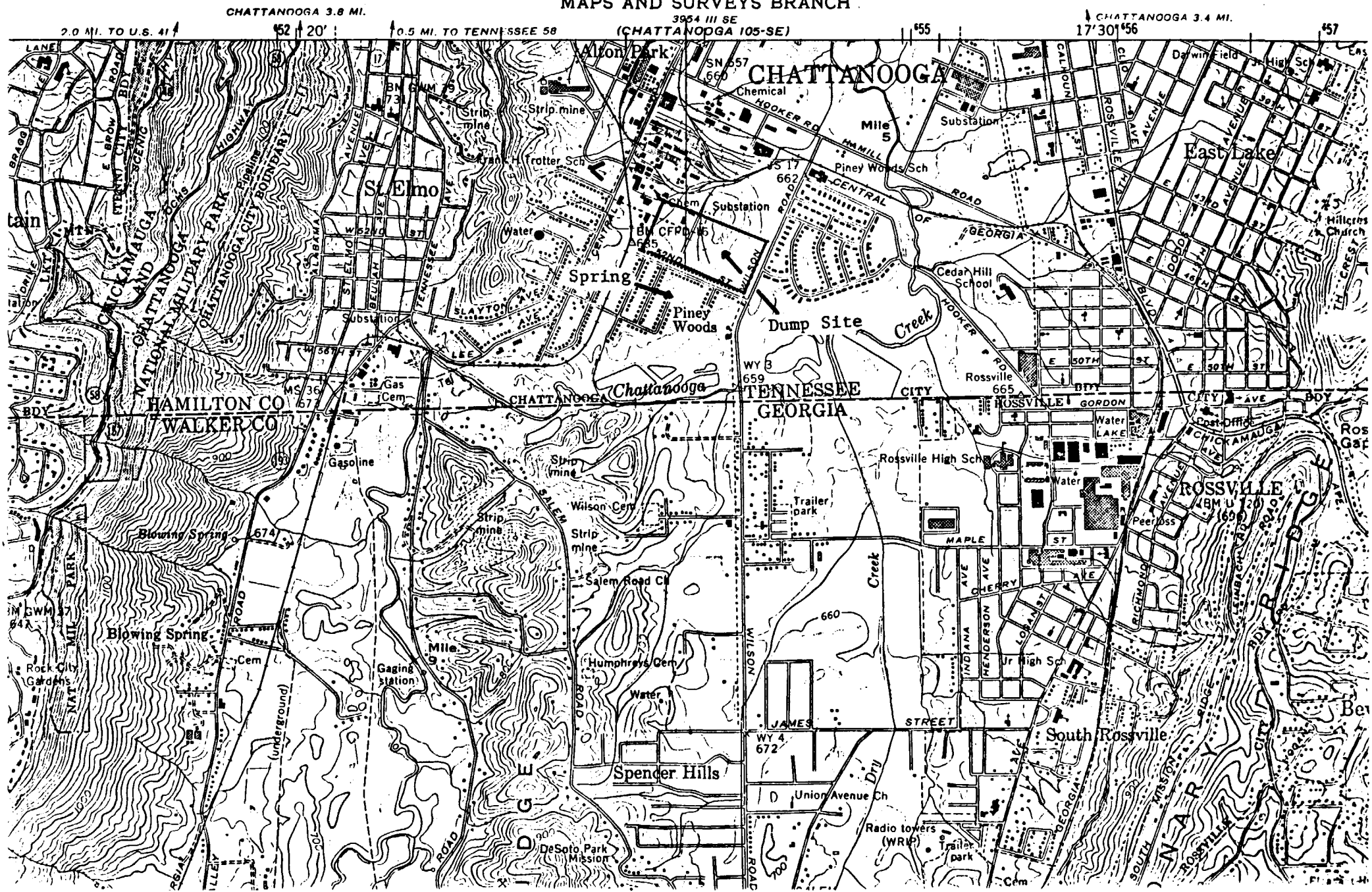
* Phenol sample for PW-002 was broken in lab.

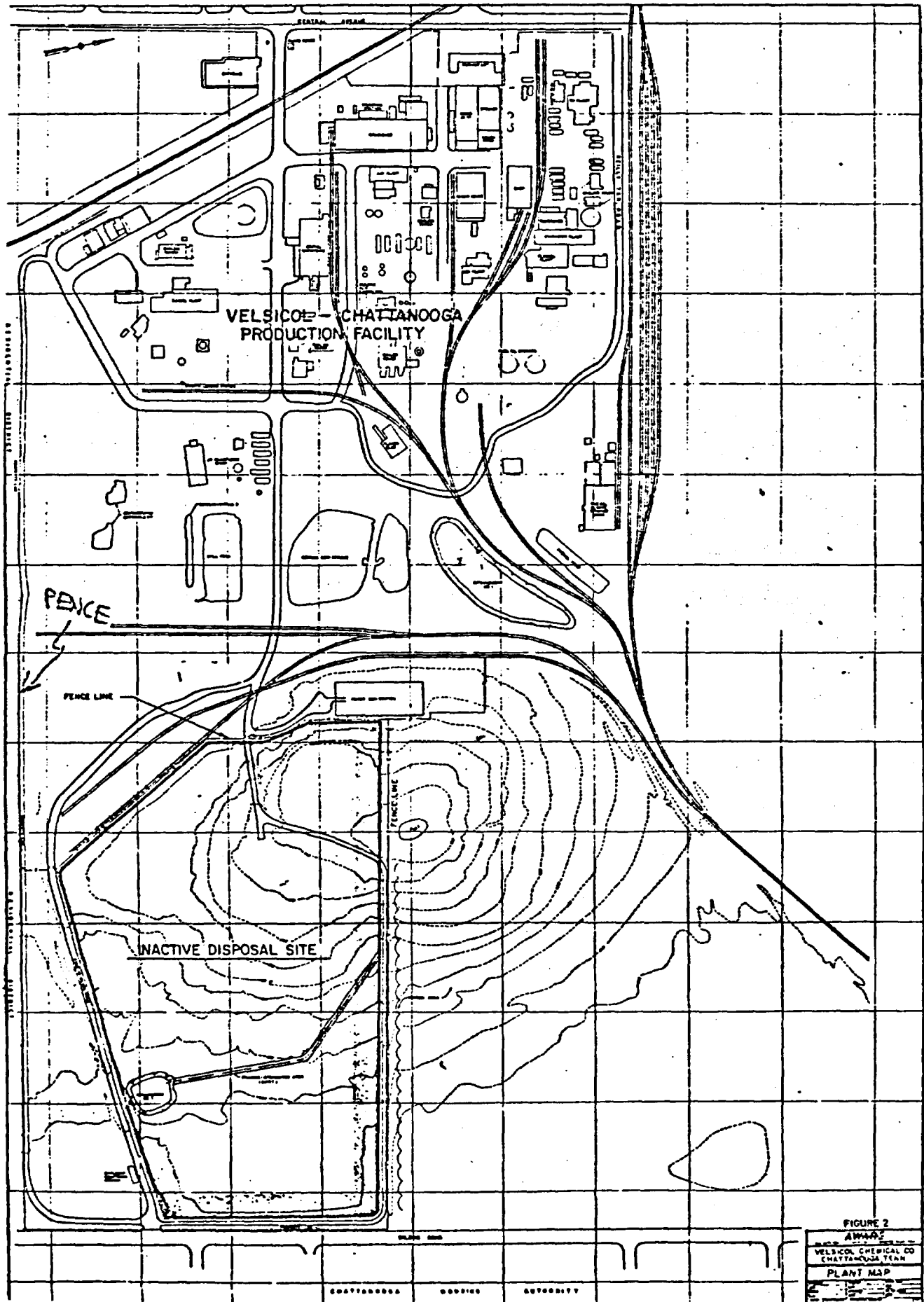
K Actual value is known to be less than value given.



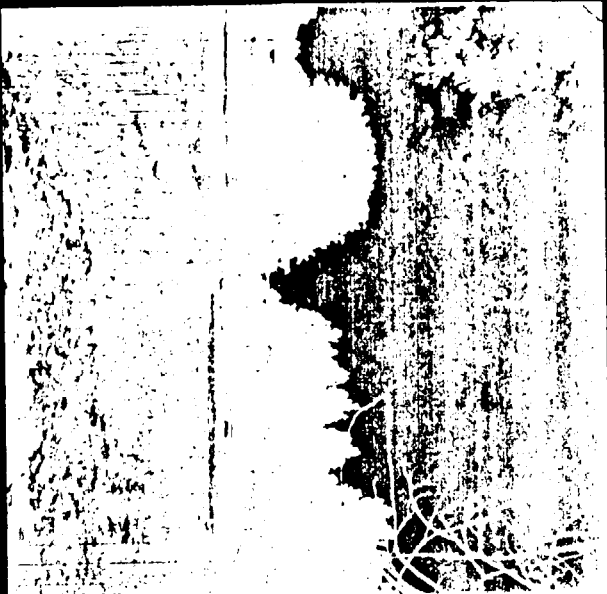
AERIAL PHOTO # 1

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH





PINEY WOODS PLAYGROUND



PICTURE 1

Looking from the earthen
dike toward Piney Woods
playground.



PICTURE 2

Earthen dike and spring
interceptor, western
boundary of playground.

Appendix A

DATE: 07/03/80

US EPA REGION IV S&A DIVISION
LABORATORY SERVICES BRANCH
DATA REPORTING SHEET
80C1629 - 80C1630
PROJECT #

SOURCE: PINEY WOODS PLAYGROUND

CITY : CHATTANOOGA

STATE: TN

CHEMIST:

SAMPLE RECEIVED DATE & TIME: 06/26/80 1915

COMPLETED: 7/21/80

SAD NO.	SI- EPP	STATION	DATE & TIME SAMPLED	SAMPLE TYPE	ANALYSES TO BE RUN									
80C1629		PW-001-SPRING BESIDE CULV ERT. BACK OF AREA	06/26/80- 1250- 00/00/00 0	AMBWA	:HG	UG/L	:METSC	:PHENOL	UG/L	:CN	MG/L	:PH	PH	:TEM DEG C:
					:		:	167	:	.002K	:	6.5	:	20
					:		:		:		:		:	
					:		:		:		:		:	
80C1630		PW-002 CREEK OPPOSITE OF SPRING ON OTHER SIDE OF	06/26/80- 1230- 00/00/00 0	AMBWA	:HG	UG/L	:METSC	:CN	MG/L	:PH	PH	:TEM DEG C:	HG	UG/L
					:		:	.002K	:	6.5	:	20	:	
					:METSC		:CN	MG/L	:PH	PH	:TEM DEG C:			
					:		:		:		:		:	

* Note phenol PW-002 broken in cool room

WATER
DATA REPORTING SHEET

SAD NO. 80C1629 CONTRACT LAB NO. D0065 CONTRACT LAB Mead Technology
 PROJECT Piney Woods Playground SOURCE & STATION PW-001
 Chattanooga, TN
 DATE/TIME SAMPLED 6-26-80 @ 1250 SAMPLE RECEIVED 6-26-80 DATA RECEIVED 8-27-80

VOLATILE COMPOUNDS ON NRDC LIST OF PRIORITY POLLUTANTS		ug/L	TENTATIVELY-IDENTIFIED COMPOUNDS	ug/L
2V	Acrolein	34210	100U	
3V	Acrylonitrile	34215	100U	
4V	Benzene	34030	140	
6V	Carbon Tetrachloride	32102	10U	
7V	Chlorobenzene	34301	885	
10V	1,2-Dichloroethane	32103	10U	
11V	1,1,1-Trichloroethane	34506	10U	
13V	1,1-Dichloroethane	34496	10U	
14V	1,1,2-Trichloroethane	34511	10U	
15V	1,1,2,2-Tetrachloroethane	34516	10U	
16V	Chloroethane	34311	10U	
19V	2-Chloroethylvinyl Ether	34576	10U	
23V	Chloroform	32106	10U	
29V	1,1-Dichloroethylene	34501	10U	
30V	1,2-Trans-Dichloroethylene	34546	10U	
32V	1,2-Dichloropropane	34541	10U	
33V	1,3-Dichloropropylene	34561	10U	
38V	Ethylbenzene	34371	115	
44V	Methylene Chloride	34423	10U	
45V	Methyl Chloride	34418	10U	
46V	Methyl Bromide	34413	10U	
47V	Bromoform	32104	10U	
48V	Dichlorobromomethane	32101	10U	
49V	Trichlorofluoromethane	34488	10U	
50V	Dichlorodifluoromethane	34668	10U	
51V	Chlorodibromomethane	34306	10U	
85V	Tetrachloroethylene	34475	10U	
86V	Toluene	34010	492	
87V	Trichloroethylene	39180	10U	
88V	Vinyl Chloride	39175	10U	
PESTICIDES/PCB'S ON NRDC LIST OF PRIORITY POLLUTANTS		ug/L		
89P	Aldrin	39330	0.10U	
90P	Dieldrin	39380	0.10U	
91P	Chlordane (Tech. Mixture & Metabolites)	39350	0.10U	
92P	4,4'-DDT (p,p'-DDT)	39300	0.10U	
93P	4,4'-DDE (p,p'-DDE)	39320	0.10U	
94P	4,4'-DDD (p,p'-TDE)	39310	0.10U	
95P	a-Endosulfan-Alpha	34361	0.10U	
96P	b-Endosulfan-Beta	34356	0.10U	
97P	Endosulfan Sulfate	34351	0.10U	
98P	Endrin	39390	0.10U	
99P	Endrin Aldehyde	34366	0.10U	
100P	Heptachlor	39410	0.10U	
101P	Heptachlor Epoxide	39420	0.10U	
102P	a-BHC-Alpha	39337	0.15	
103P	b-BHC-Beta	39338	0.49	
104P	γ-BHC-(Lindane)-Gamma	39340	0.17	
105P	Δ-BHC-Delta	34259	0.10U	
106P	PCB-1242 (Aroclor 1242)	39496	0.10U	
107P	PCB-1254 (Aroclor 1254)	39504	0.10U	
108P	PCB-1221 (Aroclor 1221)	39488	0.10U	
109P	PCB-1232 (Aroclor 1232)	39492	0.10U	
110P	PCB-1248 (Aroclor 1248)	39500	0.10U	
111P	PCB-1260 (Aroclor 1260)	39508	0.15U	
112P	PCB-1016 (Aroclor 1016)	34671	0.10U	
113P	Toxaphene	39400	0.4U	
129P	2,3,7,8-Tetrachlorodibenzo-p- dioxin (TCDD)	34675	NA	

NA - Not analyzed.

J - Estimated value.

K - Actual value is known to be less than value given.

U - Material was analyzed for but not detected. The number is the
minimum detection limit.

N - Not quantified.

WATER
DATA REPORTING SHEET

SAD NO. 80C1630 CONTRACT LAB NO. D0066 CONTRACT LAB Mead Technology
 PROJECT Piney Woods Playground SOURCE & STATION PW-002
 Chattanooga, TN
 DATE/TIME SAMPLED 6-26-80 @ 1230 SAMPLE RECEIVED 6-26-80 DATA RECEIVED 8-27-80

VOLATILE COMPOUNDS ON NRDC LIST OF PRIORITY POLLUTANTS			ug/L	TENTATIVELY-IDENTIFIED COMPOUNDS	ug/L
2V	Acrolein	34210	100U	sulfur	N
3V	Acrylonitrile	34215	100U	carbon disulfide	N
4V	Benzene	34030	127	1,1-oxybis(methylene)bis benzene	N
6V	Carbon Tetrachloride	32102	10U	1,1-oxybis-benzene	N
7V	Chlorobenzene	34301	947	biphenyl	N
10V	1,2-Dichloroethane	32103	10U	methyl biphenyl	N
11V	1,1,1-Trichloroethane	34506	10U	chloro methyl benzene	N
13V	1,1-Dichloroethane	34496	10U		
14V	1,1,2-Trichloroethane	34511	10U		
15V	1,1,2,2-Tetrachloroethane	34516	10U		
16V	Chloroethane	34311	10U		
19V	2-Chloroethylvinyl Ether	34576	10U		
23V	Chloroform	32106	10U		
29V	1,1-Dichloroethylene	34501	10U		
30V	1,2-Trans-Dichloroethylene	34546	10U		
32V	1,2-Dichloropropane	34541	10U		
33V	1,3-Dichloropropylene	34561	10U		
38V	Ethylbenzene	34371	92		
44V	Methylene Chloride	34423	10U		
45V	Methyl Chloride	34418	10U		
46V	Methyl Bromide	34413	10U		
47V	Bromoform	32104	10U		
48V	Dichlorobromomethane	32101	10U		
49V	Trichlorofluoromethane	34488	10U		
50V	Dichlorodifluoromethane	34668	10U		
51V	Chlorodibromomethane	34306	10U		
85V	Tetrachloroethylene	34475	10U		
86V	Toluene	34010	317		
87V	Trichloroethylene	39180	10U		
88V	Vinyl Chloride	39175	10U		

PESTICIDES/PCB'S ON NRDC LIST OF PRIORITY POLLUTANTS			ug/L
89P	Aldrin	39330	0.10U
90P	Dieldrin	39380	0.10U
91P	Chlordane (Tech. Mixture & Metabolites)	39350	0.10U
92P	4,4'-DDT (p,p'-DDT)	39300	0.10U
93P	4,4'-DDE (p,p'-DDE)	39320	0.10U
94P	4,4'-DDD (p,p'-TDE)	39310	0.10U
95P	a-Endosulfan-Alpha	34361	0.10U
96P	b-Endosulfan-Beta	34356	0.10U
97P	Endosulfan Sulfate	34351	0.10U
98P	Endrin	39390	0.10U
99P	Endrin Aldehyde	34366	0.10U
100P	Heptachlor	39410	0.10U
101P	Heptachlor Epoxide	39420	0.10U
102P	a-BHC-Alpha	39337	0.10U
103P	b-BHC-Beta	39338	0.13
104P	gamma-BHC-(Lindane)-Gamma	39340	0.10U
105P	delta-BHC-Delta	34259	0.10U
106P	PCB-1242 (Aroclor 1242)	39496	0.10U
107P	PCB-1254 (Aroclor 1254)	39504	0.10U
108P	PCB-1221 (Aroclor 1221)	39488	0.10U
109P	PCB-1232 (Aroclor 1232)	39492	0.10U
110P	PCB-1248 (Aroclor 1248)	39500	0.10U
111P	PCB-1260 (Aroclor 1260)	39508	0.15U
112P	PCB-1016 (Aroclor 1016)	34671	0.10U
113P	Toxaphene	39400	0.4U
129P	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	34675	NA

NA - Not analyzed.

J - Estimated value.

K - Actual value is known to be less than value given.

U - Material was analyzed for but not detected. The number is the minimum detection limit.

N - Not quantified.

DATA REPORTING SHEET
WATER

EPA-SAD-LSB 4-10-80

PROJECT Piney Woods Playground CHENIST McDaniel REC'D 6-26-80 COMPL'D 7-31-80
Chattanooga, TN
PROJECT No. 80-74

SAD NO.	80C	1629	1630		
SOURCE & STATION		PW-001	PW-002		
DATE/TIME		6-26-80 @ 1250	6-26-80 @ 1230		
ELEMENT (ug/L)					
Silver *	01077	10K	10K		
Arsenic *	01002	25K	25K		
Boron	01022	---	---		
Barium	01007	207	580		
Beryllium *	01012	10K	10K		
Cadmium *	01027	10K	10K		
Cobalt	01037	25K	40K		
Chromium *	01034	10K	42		
Copper *	01042	10K	59		
Molybdenum	01062	25K	25K		
Nickel *	01067	20K	36		
Lead *	01051	25K	130		
Antimony *	01097	25K	50K		
Selenium *	01147	40K	50K		
Tin	01102	50K	50K		
Strontium	01082	442	499		
Tellurium	01064	40K	40K		
Titanium	01152	20	318		
Thallium *	01059	100K	100K		
Vanadium	01087	10K	71		
Yttrium	01203	10K	45		
Zinc *	01092	25	170		
Zirconium	01162	10K	10K		
Mercury *	71900	0.2K	0.2K		
Aluminum	01105	1100	58600		
Manganese	01055	6200	8000		

K - Actual value is known to be less than value given.
l - Actual value is known to be greater than value given.
* - Priority Pollutant.

(Continued on Back)

U.S. ENVIRONMENTAL PROTECTION AGENCY SURVEILLANCE AND ANALYSIS DIVISION

REGION IV

ATHENS, GEORGIA

DISCHARGER Piney Woods Playground SAMPLING STATION NO. PW-001
 ADDRESS End of Polk St SAMPLING LOCATION from spring -
Chattanooga, Tenn. beside culvert #
 CONTACT Eugene White (Sketch - back of aerial
Monasik Bend Treatment Plant photo)

SAMPLE AND WASTE FLOW INFORMATION

SAMPLE ☐ MUN. ☐ IND. ☐ INF. ☐ EFF. ☒ Spring ☐ HR. COMP. AT _____ MIN. INTERVALS ☐ FLOW PRO.
 SAMPLER ☒ EPA ☐ DISCHARGER ☐ MAN. ☐ AUTO. ☐ TYPE grab
 FLOW ☐ EPA ☐ DISCHARGER ☐ AVG. ☐ INST. ☐ EST. ☐ EQUIP _____
 COMPUTED FROM _____

SAMPLE COLLECTION

	COMPOSITE	GRAB SAMPLES	SAMPLE CODE ¹²
SAD NO.			BACTERIAL 0
DATE			BOD, COD, TOC 1
TIME			CYANIDE 2
FLOW () L			METALS 3
TEMPERATURE °C			N, P 4
pH			ORG, O&G, PEST 5
TOT. Cl ₂ RES, mg/l			PHENOLS 6
			SOLIDS 7
			8
SAMPLE CODE			9
SAMPLED BY (Sig)			A
SEALED BY (Sig)			B
DATE AND TIME			PRESERVED P

¹ Use Avg. Flow for Composites and Inst. Flow for Grabs

² Circle or Indicate Analysis and Enter Numerical Code

SAMPLE CUSTODY AND SHIPPING INFORMATION

SAMPLES RELEASED TO SIG OR SHIPPED VIA	DATE	TIME	NO. CONT.	NO. CART.	RECEIPT NO.
<u>10/1/80</u>	<u>6/26</u>	<u>1915</u>	<u>1</u>		

REMARKS AND SKETCHES

CONTAINERS

- 2- glass vials - VOA
- 1- 1 gal. glass - ext org
- 1- 1 pt. glass - phenol (pres)
- 1- 1 pt. glass - metals
- 1- 1/2 gal. plastic - CV (pres)

Buffered at 7.0
 read 3.9 at 4.0
 10.1 at 10.0

* spring approximately
 2 ft. deep,
 3 ft x 5 ft. area

**U.S. ENVIRONMENTAL PROTECTION AGENCY
SURVEILLANCE AND ANALYSIS DIVISION**

REGION IV

ATHENS, GEORGIA

DISCHARGER <u>Piney Woods Playground</u> ADDRESS <u>End of Polk Street</u> <u>Chattanooga, Tenn</u> CONTACT <u>Eugene Wright</u> <u>GAH</u>	SAMPLING STATION NO. <u>PW-002</u> SAMPLING LOCATION <u>Creek opposite</u> <u>of spring on other side</u> <u>of dirt impoundment</u> <u>(Sketch - back of aerial photo)</u>
---	---

SAMPLE AND WASTE FLOW INFORMATION

SAMPLE , ☐ MUN. ☐ IND. ☐ INF. ☐ EFF. ☒ creek ☐ _____ HR. COMP. AT _____ MIN. INTERVALS ☐ FLOW PRO.
 SAMPLER ☒ EPA ☐ DISCHARGER ☐ MAN. ☐ AUTO. ☐ TYPE grab
 FLOW ☐ EPA ☐ DISCHARGER ☐ AVG. ☐ INST. ☐ EST. ☐ _____ EQUIP. _____
 COMPUTED FROM _____

SAMPLE COLLECTION

SAD NO.	COMPOSITE	GRAB SAMPLES	SAMPLE CODE ¹²
DATE	<div style="border: 1px solid black; width: 100px; height: 100px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); margin: 0 auto;"></div>	800/1630	BACTERIAL 0
TIME		6/26/80	BOD, COD, TOC 1
FLOW () ¹¹		1230	CYANIDE 2
TEMPERATURE °C		70°	METALS 3
pH		6.5	N, P 4
TOT. Cl ₂ RES, mg/l			ORG, O&G, PEST 5
			PHENOLS 6
			SOLIDS 7
			8
SAMPLE CODE		See Below	9
SAMPLED BY (Sig)		JPC	A
SEALED BY (Sig)		JPC	B
DATE AND TIME		6/26/80	P

¹¹ Use Avg. Flow for Composites and Inst. Flow for Grabs

¹² Circle or Indicate Analysis and Enter Numerical Code

SAMPLE CUSTODY AND SHIPPING INFORMATION

SAMPLES RELEASED TO (SIG) OR SHIPPED VIA	DATE	TIME	NO. CONT.	NO. CART.	RECEIPT NO.
<u>Dr. J. F. Martin</u>	6/26	1980	1		

REMARKS AND SKETCHES

CONTAINERS

2- glass vials - VOA

1- 1 gal. glass - ext. org.

1- 1 pt. glass - phenol (pres.) (-broken in lab)

1- 1 pt. glass - metals

1- 1/2 gal. plastic - CN (pres.)

Buffered at 7.0
 read 3.9 at 4.0
 10.1 at 10.0

Appendix B

VELSICOL CHEMICAL CORPORATION
ENVIRONMENTAL ANALYTICAL LABORATORY
2603 Corporate Avenue
Memphis, Tennessee 38132

LABORATORY REPORT

SUBJECT: RESIDUE HILL MONITORING
WELLS & SPRING

PROJECT NO: 049154

FILE NO. 112

SAMPLE NO. 800311-800336

AUTHOR: D. R. MARKS

DATE TYPED: September 23, 1980

PERIOD COVERED: 7/8/80--9/22/80

WORK DONE BY: R. McKinna
Frank Jordan
Stuart Goza

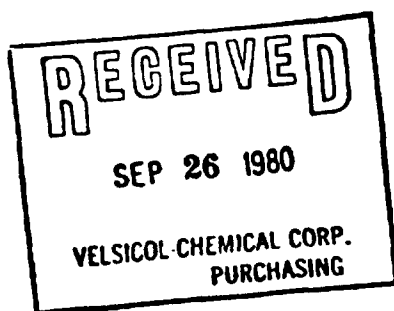
SUPERVISOR: Dr. D. R. Marks

DEPARTMENT HEAD: Dr. D. R. Marks

REFERENCES: _____

COPIES TO:
Ron Baumer 700
A. Levin 3322

OBJECT: Make baseline study of Residue Hill monitoring system.



Signature: D. R. Marks

RESULT:

RESIDUE HILL BASELINE MONITORING

Samples of six monitoring wells plus one sample of the spring were analyzed for 128 priority pollutant metals and organics (asbestos not included) plus mono-chlorotoluene, trichlorotoluene, benzoic acid, dicamba, cobalt, total phenols, pH, benzoyl chloride and benzotrichloride. Results are given in Tables 1, 2 and 3.

TABLE 1

VOLATILE ORGANIC ANALYSIS ($\mu\text{g/l}$)

Sample Parameter	1	2	Well #		5	6	Spring
			3	4			
Methylene Chloride	< 10	< 10	58	< 10	53	< 10	< 10
Acetone*	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	N.D.	8	2	4	36	0.6	106
Toluene	N.D.	N.D.	162	2	10	0.8	760
Chlorobenzene	N.D.	N.D.	24	8	650	N.D.	1140
Xylenes	N.D.	2	30	8	26	0.6	640
Chlorotoluenes	N.D.	2	542	178	64	1.6	1000
Dichlorobenzene	N.D.	N.D.	24	8	340	N.D.	600
Ethylbenzene	N.D.	N.D.	6	0.4	10	1.6	100

N.D. None Detected

*Acetone not quantitated but less than $10\mu\text{l/l}$.

RESULT:

TABLE 2

GC/MS ANALYSIS (ug/l)

Sample	Well #						Spring
Parameter	1	2	3	4	5	6	
Chlorobenzene	< 10	N.D.	21	41	790	N.D.	1400
Ethyl benzene	N.D.	N.D.	< 10	< 10	49	N.D.	140
Xylenes	N.D.	N.D.	38	10	160	N.D.	910
Chlorotoluene	N.D.	N.D.	320	140	N.D.	N.D.	800
Dichlorobenzene	N.D.	N.D.	N.D.	N.D.	270	N.D.	510
Dowtherm A*	N.D.	N.D.	28	19	100	N.D.	270
Phenol	3.2	N.D.	2.6	6.1	N.D.	1.8	N.D.
Diethyl- + Ethyl hexyl phthlate	880	38	61	N.D.	1000	16	2000
Diethyl Adipate	280	N.D.	14	N.D.	100	1.4	645
Dichlorophenol	N.D.	N.D.	25	N.D.	N.D.	N.D.	N.D.
Benzoic Acid	N.D.	N.D.	880	N.D.	N.D.	N.D.	N.D.

N.D. None Detected

*Biphenyl + Diphenylether occurring in same ratio as Dowtherm A (common industrial heat transfer fluid).

TABLE 3

METALS ANALYSIS (mg/l)

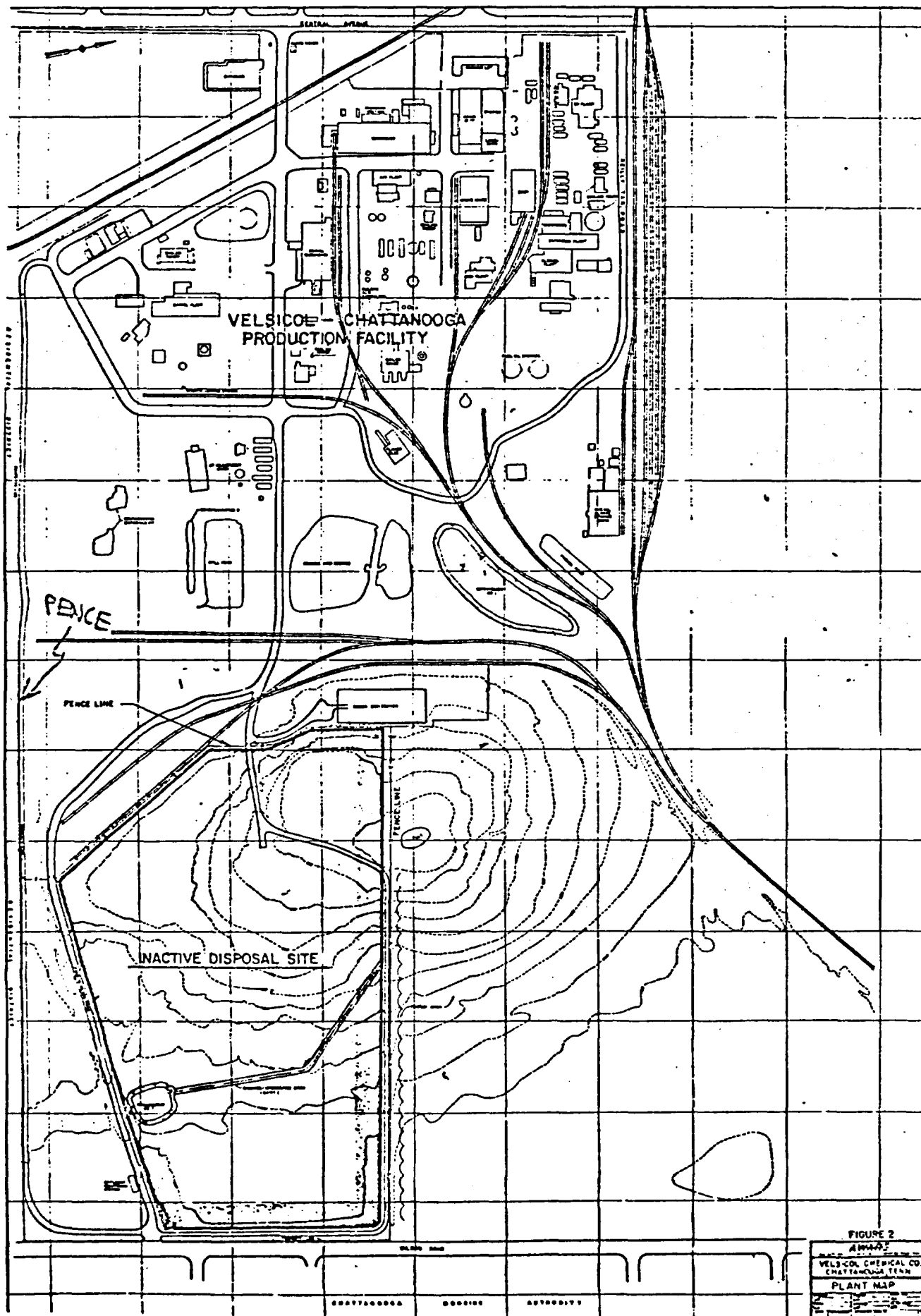
[illegible]

RESULTS:

TABLE #4

MISCELLANIOUS PARAMETERS

Sample Parameter	Well#						Spring
	1	2	3	4	5	6	
Total Phenols (mg/l)	< 0.01	0.17	0.37	< 0.01	0.73	0.08	0.32
pH	6.9	7.1	7.1	7.1	7.7	7.8	6.8



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: November 15, 1979

SUBJECT: Velsicol Chemical Corp., Chattanooga Facility;
Site Visit

FROM: Environmental Scientist
KY/TN Compliance Group

TO: Director, Enforcement Division

THRU: Chief, KY/TN Compliance Group *Q/m*

SUMMARY

On November 7, 1979, John Moebes and I visited Velsicol's Chattanooga Production Facility to inspect the residue disposal site as well as surrounding areas. After investigating several areas of interest not on plant property, we met Ron Baumer (Velsicol Manager of Environmental Residue Control Systems and Technology Development) and Dan Phelps (Environmental Manager for the Chattanooga plant) for an investigation of the disposal site itself as well as other areas of the plant property. Primary observations are summarized as follows:

I. Off-site inspection (Moebes and Green)

Piney Woods. Residential area of single family homes bordering the southwest boundary of the plant and disposal area. Pervasive chemical odor. We visited a spring located in this area and shown in both the AWARE and Law reports. The spring surfaces at a limestone outcropping and had substantial flow at the time of inspection. A strong chemical odor was present and the water's surface was covered by a somewhat oily and blue-black substance as well as lesser amounts of rust colored residue. The spring is located in a grove of hardwood trees, several of which appeared dead or dying. Velsicol has sampled this spring; however, Mr. Baumer stated that the analyses were not "credible."

Southeast Corner Overflow. This overflow is located near the southeast corner of the plant property. During heavy precipitation, leachate from the refuse area was not able to be accommodated by the outfall to the municipal sewer and overflowed under Wilson Road into a small swampy area adjacent to a Chattanooga Housing Authority public housing project. Color infra-red photography taken by NEIC in August, 1978 showed dead vegetation in this swampy area. Our inspection showed some trees which were partially dead but the damage did not appear nearly as extensive as shown in the 1978 photograph. Standing water in this area was turbid; however, there was no visible evidence of chemical contamination. In fact, small fish and frogs were present.

II. On-site inspection (Moebes, Green, Baumer, Phelps)

Refuse Area. We walked the entire area. Large areas of the hill have been sodded in an attempt to contain some of the seepage. A large seep was

observed on the east slope. This seep had similar appearance and odor to the Piney Woods spring described above. It is collected and treated. There were, however, several lesser areas of apparent seepage which are outside of the ditched and diked area. Other areas of the hill are planted in grass and mowed periodically.

Solid Waste Disposal Area. Shown on the 1978 photo. Inert building materials such as concrete and steel.

Woodland Area. Undeveloped area of largely climax vegetation occupying the northeast quarter of the plant site. Some localized garbage disposal. Easily accessible to people from the public housing project across Wilson Road.

Swamp. Occupies the northwest corner of the woodland area. Substantial areas of standing water. No visible evidence of contamination.

Minor Spring (north). Seepage from a minor spring located in the woodland area was reported in the AWARE and Law reports. Very difficult to find; neither Baumer or Phelps knew the exact location. A seepage area was found, however, which had been enlarged with a backhoe to produce some standing water. This could have been either test pit No. 9 or 10. In any case, there was no visible evidence of chemical contamination.

ACTION

From our review of the technical reports developed thus far, and from observations made during the site visit, the following measures are recommended:

- 1) The entire refuse area should be capped as described in the AWARE report. Capping only the pit areas does not appear to be an acceptable alternative to prevent off-site migration of contaminants. Moreover, the exact location of the pits is not known. A synthetic membrane offers at least two advantages: (a) it is cheaper than a clay cap, and (b) it will not crack and permit downward percolation at some later date.
- 2) Mitigative measures should begin as soon as is practicable. There appears to be no technical reason to wait until containment measures are completed at the Hardeman County site or to wait until further sampling is conducted.
- 3) The monitoring program to be instituted after containment measures are complete should include provision for groundwater surveillance to the south of the refuse area. This program should also include surveillance of wells in the area. A more complete survey of the location of existing wells than has apparently been done to date will need to be undertaken. In addition, the Piney Woods spring should be monitored.

BACKGROUND

Summary Report: Chattanooga Plant; Environment Assessment of the Residue Disposal Area, Velsicol Chemical Corp., AWARE Engineering, Inc., July, 1979.

Consolidated Report of Geotechnical Investigation. Law Engineering Testing Co., October, 1979.

A Summary of Toxic Substances Information for the Chattanooga Metropolitan Area, Tennessee-Georgia. EPA, NEIC, February, 1979.

A handwritten signature in dark ink, appearing to read "Richard D. Green", with a long horizontal flourish extending to the right.

Richard D. Green